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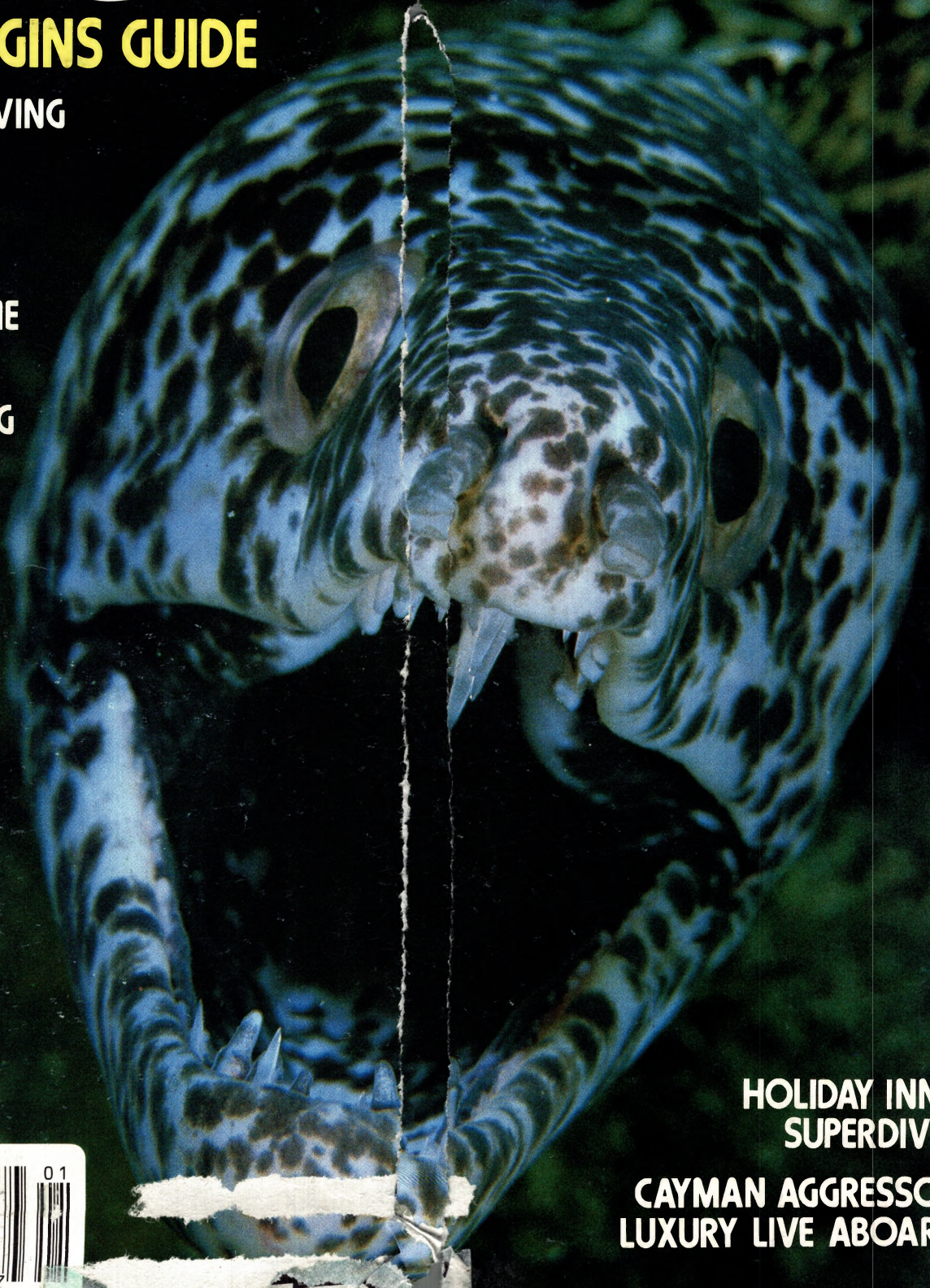
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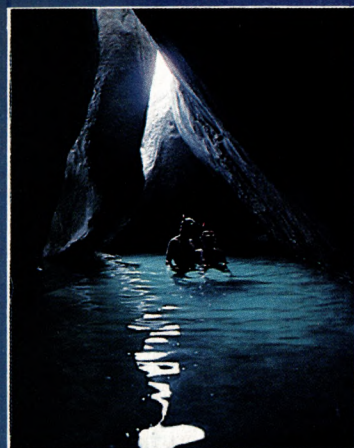
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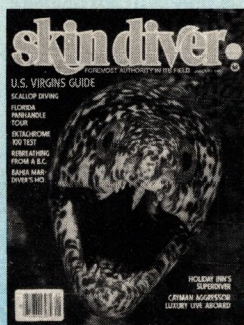
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skin diver

Volume Thirty-four Number One

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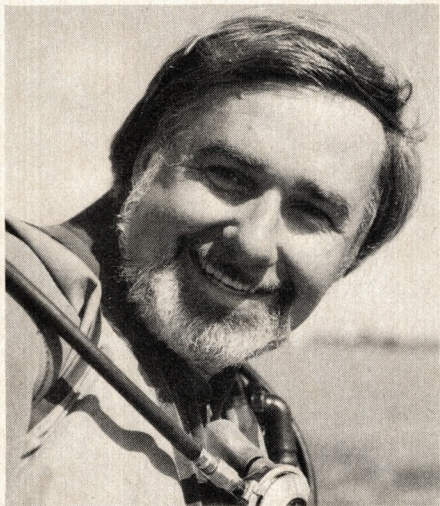
COVER

Take a trip to the United States Virgin Islands and meet Smiley the happy moray eel. Why is he smiling? Because he's about to be fed by a diver. For more on this area see page 65. Photo/Geri Murphy.

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SDM Editorial

BY THE PUBLISHER



Water Wardens

A Caribbean dive resort owner sits down with his guests for breakfast. While the divers eagerly discuss the prospects of a good dive, the owner quietly selects a chair facing the sea. The shore front is barely 100 feet away and the view from the breakfast veranda offers a spectacular panorama.

The resort owner is a cordial host, but this morning he seems distant. His conversation is almost mechanical while he gazes out the window at a tiny speck some 500 yards up the beach. His attention is riveted on a small native fishing skiff. Three young boys, all locals, are fishing with handmade spears and goggles. Twenty minutes pass and by now the guests are happily savoring their eggs and pancakes, but their host becomes grimmer by the minute. The small fishing boat has crept closer to the reef directly in front of the hotel.

Suddenly the host jumps up, runs out the dining room door and boards a dive boat at the pier. He starts the engine and races over to where the boys are fishing. Shouting in half English and half island lingo, he orders the boys not to come any closer to his reef. The young fishermen move off. For perhaps the hundredth time, the hotel owner has successfully driven off poachers who would have shot out his reef.

Why was this dive resort owner so upset? The answer is simple: He was defending a beautiful natural resource that just happened to be his chief money-maker. Located directly beneath his boat was one of the loveliest coral reefs on the island. Over the past six years he had spent thousands of hours taming the fish to take food out of his hand. His menag-

erie of undersea creatures included a 30 pound pet grouper, a pair of angelfish that would eat from your hand and a moray eel with the disposition of a puppy dog. His hotel was filled to capacity with dive guests who had come to his island specifically to see these wonderful fish. His hard work had paid off, but his problems were only beginning. In taming the creatures of the reef, he had made them vulnerable to even the most inept spearfishermen. The fish could no longer distinguish between human predator and human friend. To preserve his aquatic paradise, he had to maintain an almost 24 hour vigil over this reef.

The scenario described above actually happened and continues to happen almost daily throughout the Caribbean. There are literally hundreds of self-appointed guardians constantly watching over the reefs and the animals who live there. Most of them are divemasters, instructors, boat skippers or resort owners who feel compelled to protect the undersea environment from the unwitting public. Almost daily they lecture visiting guests on the subject of marine conservation. They plead, cajole and frequently demand that visiting divers not shoot fish, pick black coral, destroy seafans or scoop up living shells. Their struggle to save the reefs is an endless uphill battle for survival—survival for themselves as well as the marine environment.

The one bright hope in this battle for marine conservation is that the dive resort operators have managed to make an impact on many island governments. By constantly educating and lobbying for marine conservation, these courageous people have frequently won the support of local governments. It is the divers who have made the difference, by awakening these governments to the need for conservation regulations.

The Cayman Island government has a Marine Conservation Law that makes it illegal for visiting divers to collect living marine organisms such as seafans, black coral, sponges and tropical fish. The law also bans spearfishing with the use of scuba gear. The government has set aside certain coral reef areas as underwater parks.

The Bahamas has established a clear

and concise code of marine conservation laws for visiting divers. It is illegal to remove any type of marine life from the reef or ocean floor with the use of scuba or a surface air supply system. Spearfishing is limited to free divers and either an Hawaiian sling or polespear. All other types of spearguns are outlawed. It is also illegal to catch and export any type of marine organism, including lobster, live marine tropicals, black coral or speared fish. The Bahamas has at least four marine sanctuaries designated as land and sea parks where nothing may be disturbed.

The government of the British Virgin Islands declared the wreck of the *Rhone* a marine sanctuary and national monument. Both the wreck and the marine life on it are protected from souvenir hunters, spearfishermen and fish collectors. The same sort of thing has happened in Bonaire, Barbados, the U.S. Virgin Islands and many other popular resort diving destinations. And it is not by accident that the islands that wisely protect their reefs are the same ones that enjoy a booming diving tourism business. Vacationing divers are not interested in visiting vacant parking lots or sandy deserts. They are motivated by clear water, living coral reefs and abundant marine life.

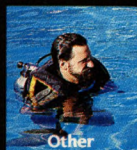
Perhaps there is a lesson to be learned from the current conservation trend among the Caribbean islands. The struggle for marine conservation cannot be won by merely organizing a conservation association, publishing a newsletter and collecting dues. While such activities may be helpful in organizing such a movement, the real battle must be fought at sea. Too often Americans expect their government to do everything for them. They expect a rousing newspaper article or an impressive political speech to make things right, but it never happens this way in real life. If there is anyone who is going to successfully save our marine environment, it will be divers. We are the only ones who care enough and are capable of policing and protecting the underwater world. By working together, divers and local governments can establish effective conservation regulations that can save our reefs. Those who make a living or benefit from the sea must be prepared to protect it. 

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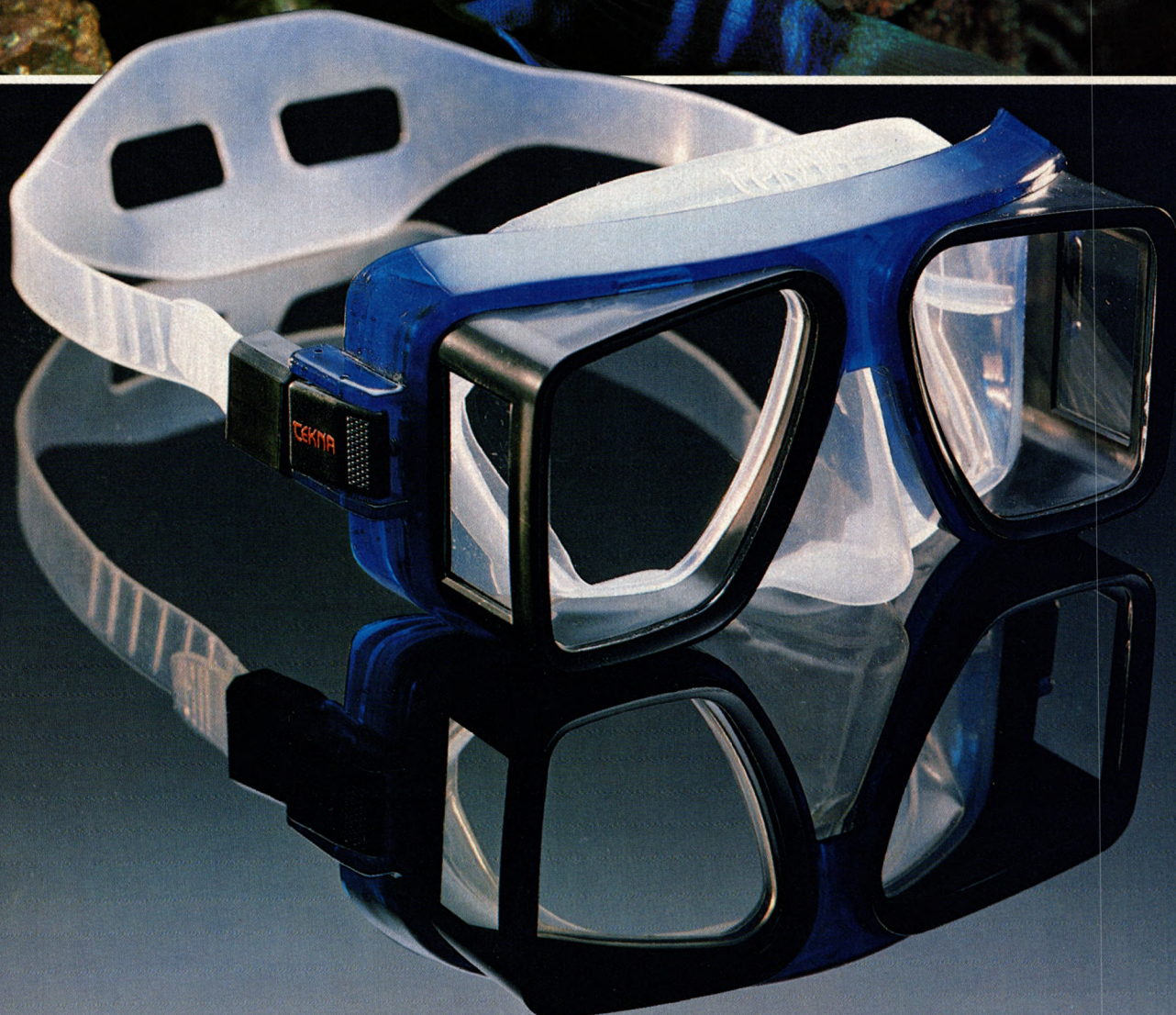
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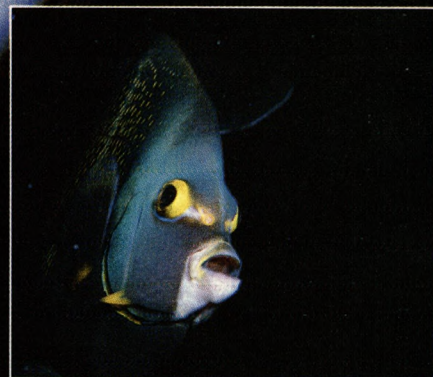
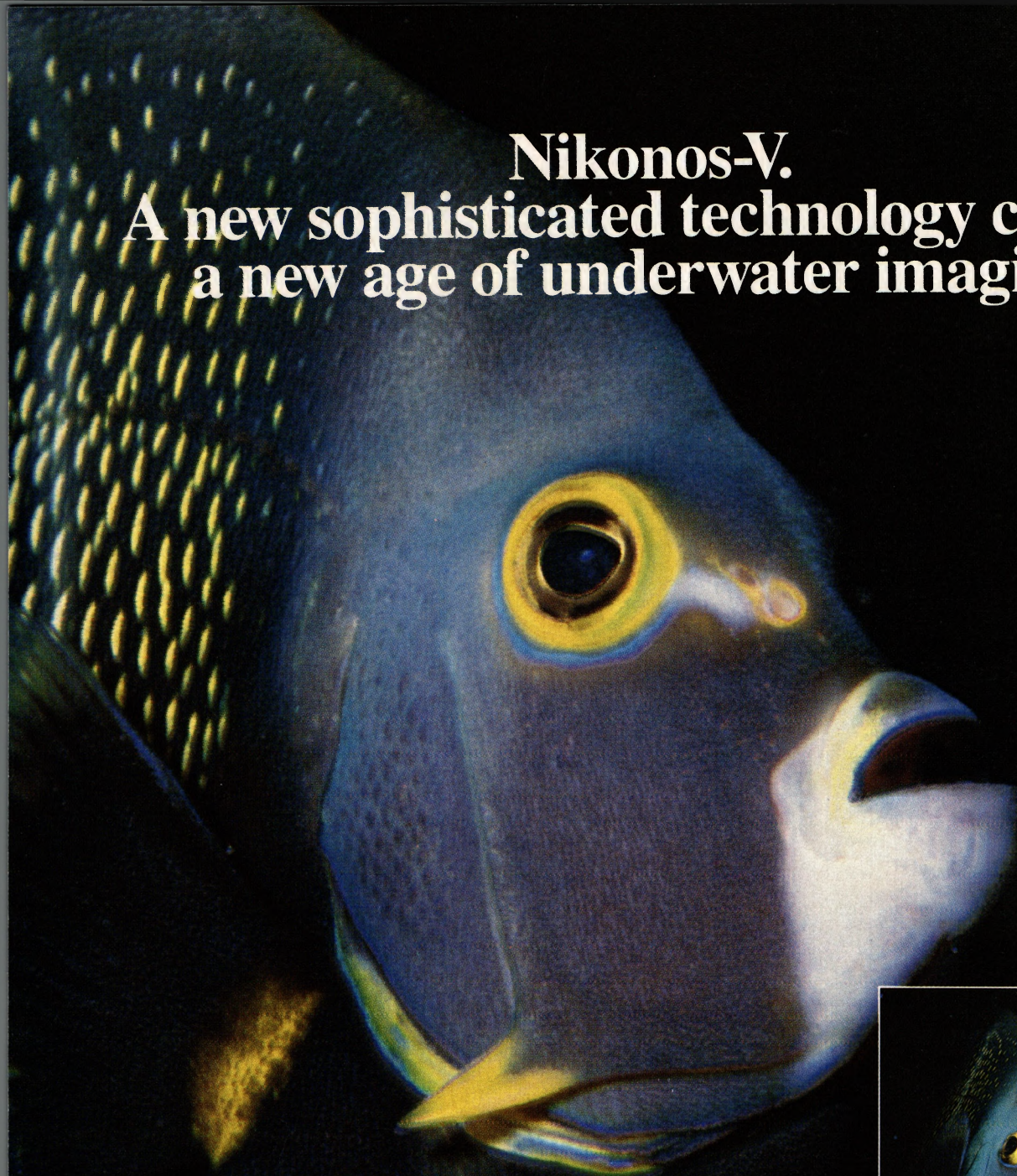
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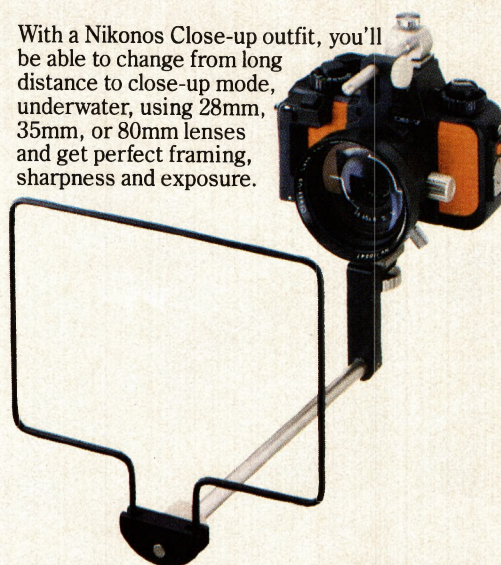
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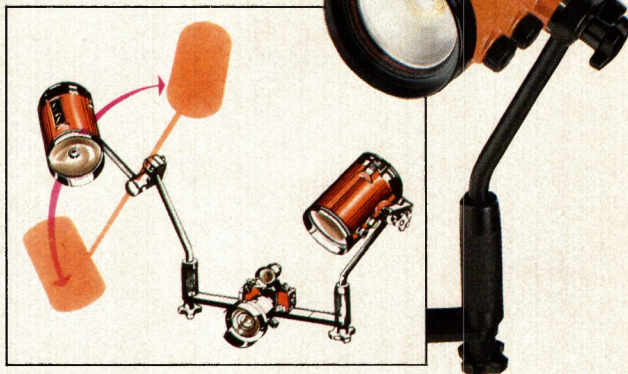
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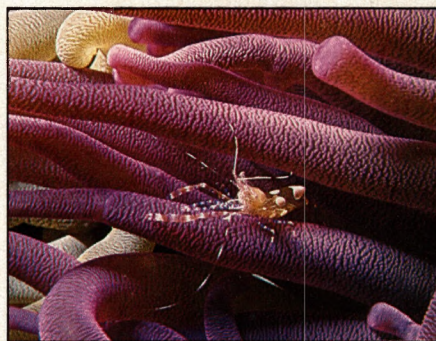
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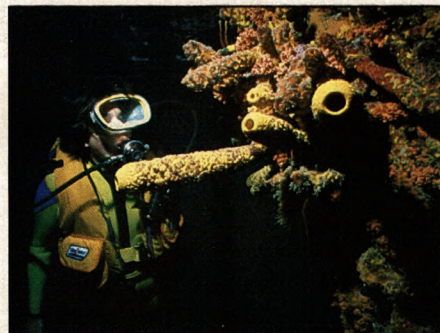
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Scuba Quiz

Category: Diving Compasses

By Dennis Graver

A compass is an important reference instrument, yet many divers do not have one. Many of those who do have compasses do not know how to use them properly. See if you understand some of the important aspects of a diving compass which are not commonly taught but which apply to diving situations. The answers are on the next page.

1. Select the activity for which a diving compass is least useful:

- ☐ A. Search and recovery
- ☐ B. Dive site relocation
- ☐ C. Navigation from a chart
- ☐ D. Low visibility reference

2. List five desirable features of a diving compass:

- ☐ A. _____
- ☐ B. _____
- ☐ C. _____
- ☐ D. _____
- ☐ E. _____

3. Items which can cause deviation in a compass should be kept at least _____ from a compass.

- ☐ A. 6 - 12 inches
- ☐ B. 12 - 18 inches
- ☐ C. 18 - 24 inches
- ☐ D. 24 - 36 inches

4. Which of the following items, when close to a compass, will cause the greatest amount of deviation:

- ☐ A. A steel scuba tank
- ☐ B. A dive watch
- ☐ C. A dive light
- ☐ D. Another compass

5. How should a diver compensate for variation in compass readings caused by geographical location in relation to the earth's poles?

- ☐ A. The variation should be ignored
- ☐ B. Easterly variation should be subtracted from the heading; westerly variation should be added
- ☐ C. Westerly variation should be subtracted from the heading; easterly variation should be added
- ☐ D. An average variation of five degrees should be added or subtracted from the heading

6. Which of the following is most likely to result in damage to a diving compass?

- ☐ A. Leaving it close to a ferrous object for long periods of time
- ☐ B. Failing to rinse it after a dive
- ☐ C. Failing to store it in a level position
- ☐ D. Leaving it in the sun for long periods of time

7. True or False: Compasses for land usage read 0 to 360 degrees clockwise while diving compasses read 0 to 360 degrees counterclockwise.

- ☐ A. True
- ☐ B. False

8. What effect does water have on magnetic influence?

- ☐ A. Increases it
- ☐ B. Decreases it
- ☐ C. Has no effect
- ☐ D. Varies with depth and water density

9. Arrange from least accurate to most accurate the following methods of compass use for following a heading:

- ☐ A. Compass mounted in instrument console
- ☐ B. Compass mounted on wrist
- ☐ C. Compass held in hands
- ☐ D. Compass attached to compass board

10. True or false: A reference heading should be set on a compass at the beginning of a dive.

- ☐ A. True
- ☐ B. False

Scuba Quiz

Answers: Diving Compasses

1. C. Navigation from a chart. A diving compass is used to provide a reference for relative direction rather than for exact information on a heading. Short distances are involved rather than the long ones associated with chart navigation. The greatest value of a diving compass is to serve as a relative reference so you can determine where you are and where you are going.

2. Five desirable features of a diving compass: A. Liquid filled to dampen needle movement and withstand pressure. B. Has a lubber line to provide a reference for a heading. C. Has moveable index marks that can be placed over the needle to act as a memory for a particular heading. D. Reads accurately even if somewhat tilted. E. Has low profile for compactness and ease in sighting over it. F. Is marked in degrees for ease of reading.

3. C. 18 - 24 inches. Deviation is the effect of nearby magnetic fields or metal on a compass needle, which is essentially a magnet. The needle is attracted to ferrous metals or to another source of magnetism and will deviate from the correct heading. Some deviation is acceptable when diving provided it is constant. This is acceptable only because the compass is used for relative direction instead of actual direction.

4. D. Another compass. A magnetic field affects a compass more than anything else and another compass represents a magnetic source. Problems have resulted when divers have placed

compasses close together to compare readings. Keep compasses and other magnetic sources at least two feet from your compass. To determine if your equipment causes deviation in your compass, set the compass on the floor and bring various items of gear close to it to note the effect.

5. A. The variation should be ignored. A compass needle points to magnetic north, which is not true north owing to the location of the earth's magnetic poles. To correct for this, a heading adjustment, provided on navigational charts, must be used. However, since a diving compass is used only for relative direction, the variation is of no consequence.

6. D. Leaving the compass in the sun for long periods of time. Diving compasses are liquid filled. When left in the sun, the liquid warms and expands. The expansion can crack the case and allow the liquid to escape. The heat can also warp the compass and affect its operation.

7. B. False. Diving compasses have degree readings which go both clockwise and counterclockwise. It can be difficult to understand why some compasses are one way and others are another, but it pertains to their use with respect to a chart. There is a good explanation of this in the January '84 Technifacts for those interested. Again, since you only care about relative bearings, it is not important which way the degrees are arranged.

8. C. Has no effect. Water does not have magnetic properties, so it does not affect the magnetic lines which pass through it. A setting taken at the surface will be constant beyond the depth limits for recreational diving. Some people think a compass needle will not be attracted as strongly underwater as at the surface, but this is not the case. You may be tempted to believe that the information provided by a compass is in error, but it is better to trust it than your instinct.

9. A, B, C, D. When a compass is placed on a compass board and the lubber line extended, great accuracy is possible. The next best way to use a compass is to hold it in both hands and to extend it well in front of yourself while sighting over it. Reasonable accuracy can be achieved when the compass is worn on the wrist and fairly accurate navigation is possible with a console mounted compass. Each method moves the compass progressively closer to the diver. This contributes to reduction in accuracy.

10. A. True. A compass is supposed to provide relative direction. You need a reference in order to know where you are in relation to where you want to go. Set a reference heading toward the boat or toward shore so you can track your relative position during a dive. By following a simple course and referring to your compass occasionally, you will develop the ability to navigate so you can end a dive where you want.

Navigation can be quite sophisticated, but diving navigation can be quite simple with training and practice. It does help to know a lot about navigational procedures, however. The best way to learn is through an advanced diver course or through a specialty course such as search and recovery. Boating courses that include navigation in the curriculum will also be beneficial. Developing seamanship is a good idea for all divers. I hope this month's quiz has provided some useful information to help keep you on course. As usual, its purpose is to whet your appetite to learn more about the topic. >

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Wreck Facts



photo/courtesy Great Lakes Historical Society

BY ELLSWORTH BOYD

Convict ships! Have you heard about them? I hadn't until Dick Norgard wrote and told me about the *Success*—not a very endearing name for a convict vessel—that he has researched for more than 15 years. Convict ships were built by American Indians in the late 1800s and used to transport prisoners to Australia.

Although shrouded in myth and legend, convict ships were infamously dubbed "The Felon Fleet" and used cat-o-nine tails, handcuffs, leg irons and other notorious means of keeping prisoners in tow. The *Success* was claimed to have been the commodore or principal "devil ship" of the 17 vessel fleet. She was a trade ship transporting emigrants and supplies to Australia until 1852 when she was purchased by the Victorian Government and converted to a floating prison.

An American named David Smith purchased the *Success* in 1912 and made her a popular tourist attraction for 20 years, exhibiting the convict ship on both coasts, the Mississippi River and the Great Lakes. In 1945 she went down off Sandusky, Ohio, but was raised and towed to Clinton, Ohio where she grounded about 2,000 feet offshore.

Dick Norgard writes: "The convict ship *Success* remains a popular Lake Erie wreck because she is easy to locate. She rests in 15 feet, due north of the Port Clinton bypass exit cloverleaf. Divers can find her marked on the Corps of Engineers charts and most lake dive and shipwreck charts. Because of the muddy lake bottom, visibility is only a few feet. Fishermen used to mark her location with bleach bottles."

Has anyone found a sunken city? Ahmed Elmagarmid, Dublin, Ohio, is looking for one. Ahmed says: "I will be going to the Mediterranean for two years and will be in Tripoli, Libya on the North African coast. Do you have any informa-

tion on a sunken city on the East Coast of Libya?" Yes, Ahmed I do and it is very fascinating. In the beginning the identity of the city of Apollonia on the Cyrenaican coast of Libya was puzzling. Archaeologists speculated she was a sunken city from artifacts recovered by sponge fishermen. But after parts of a shipwreck were recovered, the supposition was that a fleet of ships rested on the bottom of this early Greek port.

In 1959, author and historian N.C. Fleming led an expedition to Apollonia and proved without question that more than half of this bygone Greek port lay beneath the sea. A victim of an earthquake, Apollonia was founded in 96 B.C. when the Romans used the port to export chariots, grain and sylphium—a drug used by priestesses of the oracles.

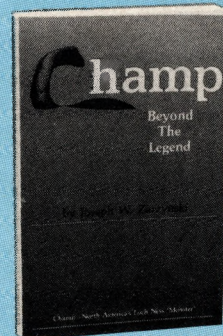
After plotting the main arteries of the city, Fleming and his partner, Australian Hugh Edwards, began exploring in the northwest corner amid a cluster of rocks that broke the surface. Nicknamed the Groto Reef, it was a natural outcrop with hand-carved walls dropping straight to the bottom. Within the walls was a submerged tunnel 60 feet long, four feet wide and six feet from the floor to the ceiling. Divers came up with pots, jars, dishes, amphorae and utensils by simply fanning the sand.

At the eastern end of the port Fleming came upon scattered rubble and blocks of marble, all remains of a breakwater that enclosed the harbor basin. Inside the breakwater was a large Roman *piscina*, a fish tank divided into many compartments and connected to the open sea by narrow channels. Fish were cultivated in these tanks and the changing tides were regulated by stone sluice gates. The prize of the expedition was a wedge-shaped Greek anchor pried from the mud. Historians know from the *Odyssey* that My-

cenaeans used heavy stone anchors such as these as opposed to Roman anchors made from wood and lead.

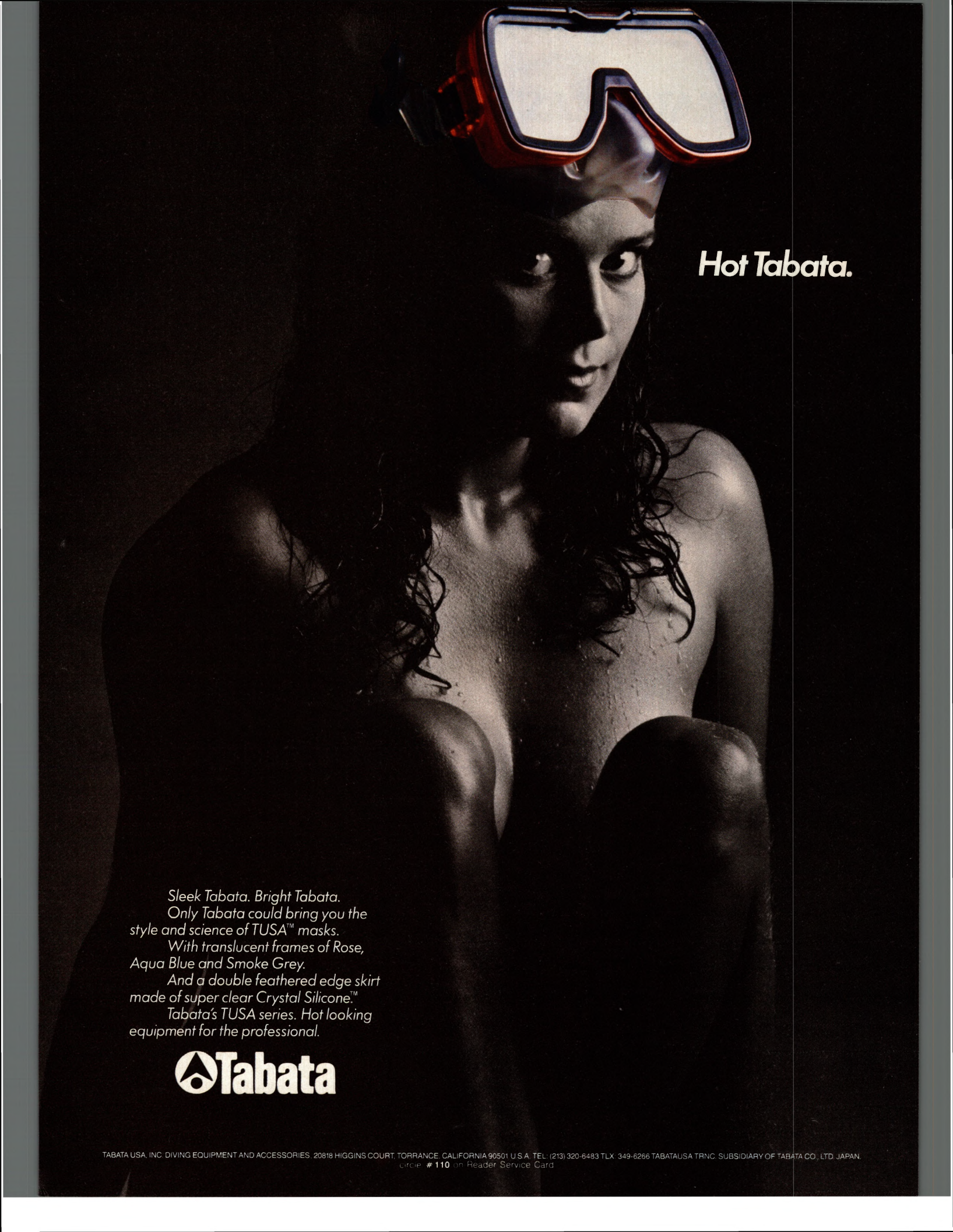
Bob Fraser, Grand Forks, North Dakota, says he would appreciate information on wreck diving in Lake Champlain, upstate New York. Your first resource, Bob, should be the book: *Great Lakes Maritime History—Bibliography and Sources of Information* by Charles and Jeri Feltner, available from: Seajay Publications, P.O. Box 2176, Dearborn, MI 48123. Joe Zarzynski's book, *Champ—Beyond the Legend*, which I review in this article, is all about Champlain. Don't forget the Champlain Maritime Society, P.O. Box 745, Burlington, VT 05402.

Shiver me timbers! Avast ye lubbers and heave away there me hearties! Pirates! Edward Dethlefsen has captured them, complete with bandana, eyepatch and peg legs, flying the skull and crossed bones. It's all in his new book, *Whidah: Cape Cod's Mystery Treasure Ship*. The book, 10 chapters plus an appendix, sports an authentic treasure map on its front cover. The history of the *Whidah* and legendary Captain Black Sam Bellamy is fascinating, capped off by Barry Clifford's discovery of the 1717 buccaneer vessel that is supposed to contain over \$1 million in pirate booty. Hot off the press, the book may be ordered from: Seafarer's Heritage Library, P.O. Box 73, Woodstock, VT 05091.



Champ—Beyond the Legend, written by Lake Champlain expert Joseph Zarzynski, is a brand new non-fiction book on Champ, the denizen of the lake. Shipwreck and scuba enthusiasts will benefit from sections that quote sonar experts Marty Klein, Robert Rines and Jim Kennard. The application of sidescan sonar such as that used to locate the wrecks *Scourge*, *Hamilton* and *Edinburgh* is discussed in theory and practice. Bound with 224 pages and 70 illustrations, the book is available from: M-Z Information, P.O. Box 2129, Wilton, NY 12866.

Stephen Voynick has written a new book: *The Mid-Atlantic Treasure Coast*, covering coin beaches and treasure wrecks from Long Island, New York to the Eastern Shore of Maryland and Virginia. Voynick has researched the *Money Wreck*, *Sindia*, *Hussar*, *Juno*, *Republic*, *Debraak*, *Faithful Steward* and *Merida*. He includes accounts of coin beaches and other treasures lost and found in the



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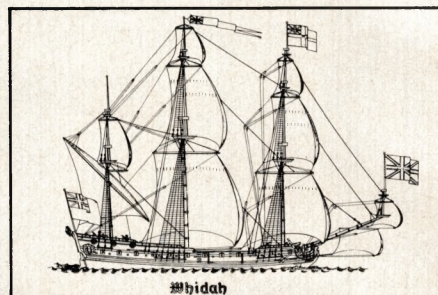
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WRECK FACTS

mid-Atlantic, resting place for 8,000 shipwrecks. Appealing and educational, the book is available from: Middle Atlantic Press, P.O. Box 263, Wallingford, Pennsylvania 19086.

North Carolina wreck divers have been anxiously awaiting Ed Caran's published research on the *U-352*. He has two sets for sale: *U-352—Pictures and Reports* and *Records and Reports of the U-352*.



The World War II German U-boat, sunk in North Carolina's Graveyard of the Atlantic, has been explored by many divers out of Moorehead City and they are intrigued by its history. Caran says several members of the original crew of the *U-352* supplied photos for his publication and so did Captain Rathke who commanded the German submarine when it was sunk. The books may be ordered from: Ed Caran, P.O. Box 178, Jacksonville, NC 28541.

Bill Traughber, Nashville, Tennessee, asks for information on a British tanker called the *Empire Mica*, torpedoed by a German U-boat off Panama City, Florida in World War II. You will find the entire story and photos, Bill, in a paperback booklet called: *Scuba Panama City* by Danny Grizzard and Joe Van Valkenburgh, P.O. Box 1796, Gulf Shores, Alabama 36542.

That's all for now. I'll have lots of interesting wreck information next month. Until then, safe diving to all. Ellsworth Boyd, Rt. 2, P.O. Box 408, 1120 Bernoudy Rd., White Hall, MD 21161. Please enclose a stamped, self-addressed envelope when writing for wreck information. >

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Diver's Calendar

January 1 UnderSeas Sports Club of Ft. Lauderdale, Florida is hosting a New Year's Eve Dive at the New River Inlet at Bahia Mar in Ft. Lauderdale. (Contact: UnderSeas Sports Club, 1525 N. Federal Highway, Ft. Lauderdale, FL 33304; (305) 564-8661)

January 1 SECONN Divers' 20th Annual Frozen Fin Dive. Prizes donated by distributors including dive gear, charters and more. (Contact: Lynelle Marino, 27 Stowe St., Middlefield, CT 06455; (203) 349-8471)

January 13 Sixth Annual Buckeye Divers Underwater Film Festival, Ohio Historical Society, I-71 and 17th Avenue, Columbus, Ohio. (Contact: Tim Ewald (614) 268-8086)

January 19 California Wreck Divers 14th Annual Awards Banquet, featuring author Clive Cussler as Master of Ceremonies and giving a presentation on shipwrecks. (Contact: Herb Miller (213) 390-5171 or Bill Wilson (213) 306-7822; P.O. Box 10693 Marina del Rey, CA 90291)

February 1-3 Ohio Council of Skin and Scuba Divers 1985 Banquet Ball at the Holiday Inn, Bellefontaine, Ohio. (Contact: Judy Ormeroid, 629 West 4th Street, Marysville, Ohio 43040)

February 9 Eleventh Annual AID Dive sponsored by the Kitchener-Waterloo & District Underwater Association at the Elora Quarry, Ontario Canada. (Contact: Doug Ross (519) 742-5354)

February 16 Eighth Annual Great Lakes Shipwreck Festival. Event includes premiere, multi-media shipwreck presentations, diver's forum and artifacts display. (Contact: M. Grammer (313) 561-8393; 1841 North Denwood, Dearborn, Michigan 48128)

March 2 Boston diving show, Underater '85, at the Park Plaza Hotel. (Contact Fred Calhoun, P.O. Box 291, Back Bay Annex, Boston, Massachusetts 02117; (617) 532-5431)

March 2 The Stan Waterman Show, John Hancock Hall, Berkeley St., Boston, MA. (Contact: Fred Calhoun, P.O. Box 291, Back Bay Annex, Boston, MA 02117; (617) 532-5431)

March 2 Ninth Annual Diver's Showcase, Lansing, Michigan. Sponsored by the Capitol City Dive Club at the International Center, Michigan State University. (Contact: CCDC, P.O. Box 1055, East Lansing, MI 48823)

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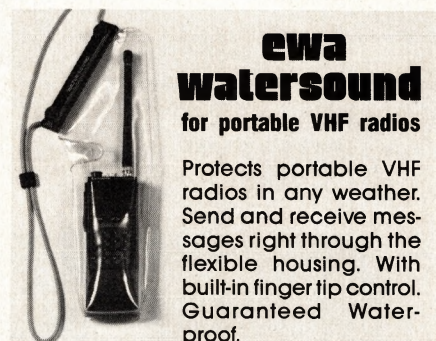
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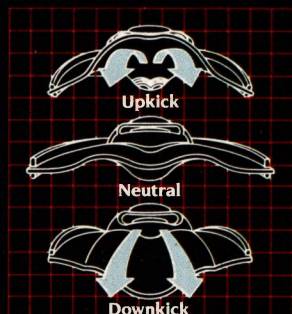
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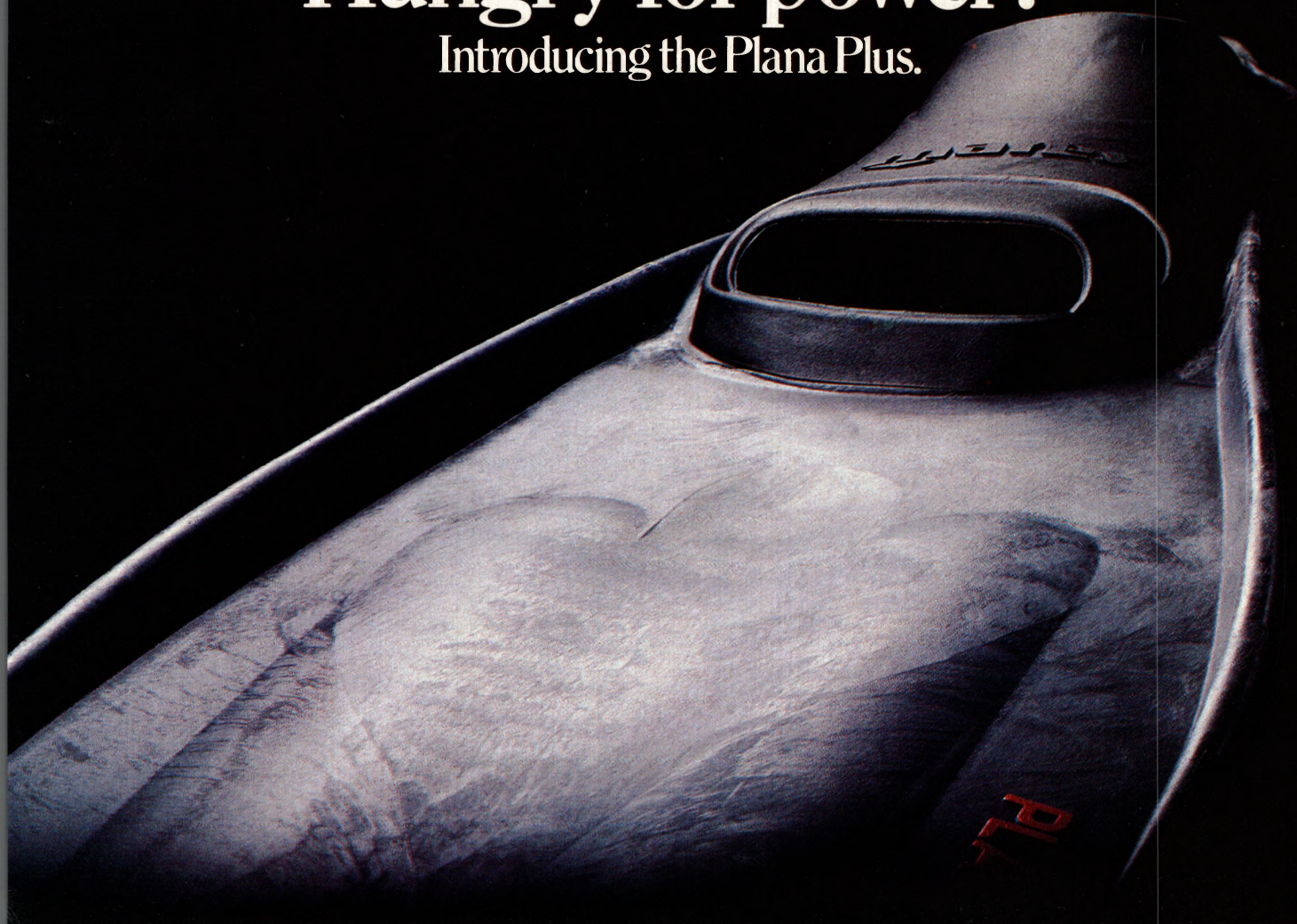
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BY HARRY AVERILL



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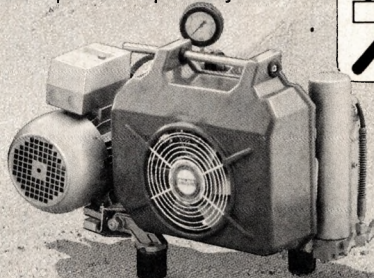
proach comes from a belief that these abilities are best developed over a slightly longer time period, in a structured, yet relaxed environment. Consequently, PADI instructor training is a four step, as opposed to a one step, process.



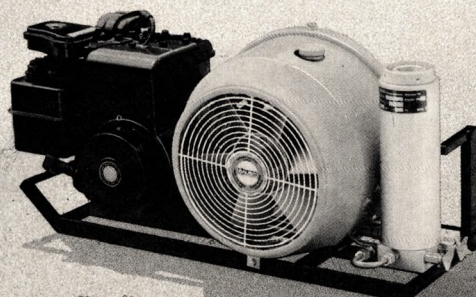
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dozens of PADI Five Star Instructor Development Centers worldwide. Nine day combination IDC/IEC programs are offered through qualified PADI district course directors and by PADI International College.

Additional information on becoming a PADI instructor is available from PADI, 1243 East Warner Avenue, Santa Ana, CA 92705. >

AID DIVE '85

The Eleventh Annual AID Dive (an ice dive) will take place February 9 at the Elora Quarry, Ontario Canada. Hosted by the Kitchener-Waterloo and District Underwater Association, it is expected to be the largest AID Dive ever, with over 100 divers participating.

The purpose of the dive is to raise money for a local charity. Over the past ten years, \$56,000 has been raised. The goal this year is \$10,000 which will be used to purchase training and educational material for Citizens Concerned with Crimes Against Children.

The AID Dive is a ten hour marathon dive, with each buddy team spending a half hour under the ice. Divers raise money by pledges per hour for a maximum of ten hours. For more information write 135 Vintage Cr., Kitchener, Ontario, Canada or phone (519) 742-5354. >

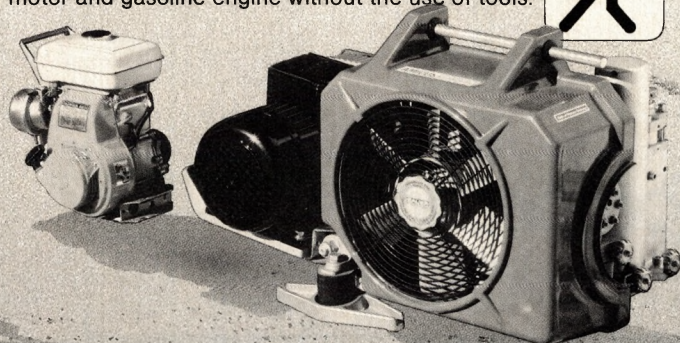
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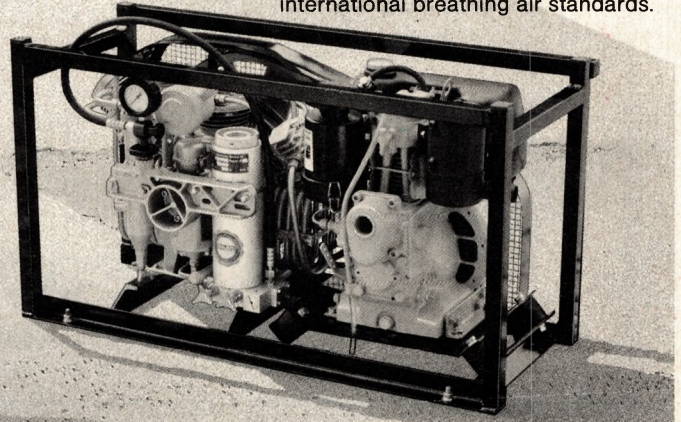
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A MESSAGE FROM **THE OCEAN CORPORATION** HOUSTON, TEXAS

PADI Headquarters sent a memo to their instructors on 25 July 1984 stating that the commercial offshore diving industry is in a "severe economic decline", and that "considerable numbers" of commercial divers are unemployed.

The apparent purpose of the memo was to have PADI instructors urge interested divers to attend the PADI sport diving instructors school.

We here at the Ocean Corporation cannot speak for the other commercial diving schools, but we can speak for ourselves. We have **not** seen any decline in job opportunities for entry level commercial divers. Here is a documented summary of our graduate placement record over the last three years:

	AVAILABLE CLASS GRADUATES	IMMEDIATE JOB OPENINGS		TOTAL IMMEDIATE JOB OPENINGS	UNFILLED OPENINGS	PERCENT UNFILLED
		TEXAS	LOUISIANA			
1981 (3 classes)	41	17	70	87	46	53%
1982 (10 classes)	127	83	162	245	118	48%
1983 (10 classes)	186	63	140	203	17	8%
1984 (8 classes)	162	133	186	319	157	49%

FACT: In the last three years (during the so-called "slump") we've consistently had many more immediate job openings than we've had graduates to fill them. If you want more proof, we can give you the exact date, the diving company's name, the operation manager's name and the type of job offered for every single opening listed...including whether or not they would accept smokers and guys with beards.

Here in Houston, we have **never** had a situation where we couldn't find our graduate a diving job within a few days.

We would appreciate it if you would tell it like it is. The Gulf of Mexico commercial diving industry is alive and well, and our graduates go to work.

Thanks,

LARRY CUSHMAN
President

The Ocean Corporation

5709 Glenmont Houston, Texas 77081 (713) 661-0033

Want to work in the diving industry? Come to the world's best commercial diving school...



Photos by LARRY CUSHMAN

Come to Houston!



About a third of the world's entry-level professional divers are trained at the Ocean Corporation in Houston. We're the biggest and the best...and the commercial diving companies in our area know it. Last year more than 50 different diving companies hired our people. More divers are hired in Houston than any place in the world. Houston is the oil, offshore construction and commercial diving capital of the world.

If you are interested in becoming a professional diver, remember these facts about the Ocean Corporation.

We teach everything you need to know to immediately go to work.

We run complete night courses as well as our regular day classes.

We have the largest full-time training staff of any diving school... anywhere.

Most of our instructors are active inshore and offshore commercial divers.

We pioneered bell diver training, in-house welding training, ASNT-level inspection diver training and Diver Medic certification.

We have our own diving division which performs specialized industrial diving operations, such as underwater NDT inspection and nuclear powerplant repair work.

We have a fine climate and good living conditions. Nearby apartment sharing and part-time jobs are readily available.

We'll help you get your first diving job.

Remember, all commercial diving schools are not alike. Check them out. Visit the school if you can. Look for real commercial diving professionalism and reputation, adequate facilities and equipment, experienced instructor staff, decent housing and living conditions, and, probably most important to you, ask them how they plan to help you get your first job in the commercial diving industry.

If you want to be a professional diver, contact our Admissions Department. Use the Reader Service Card or call us toll free - (800) 321-0298. You'll be glad you did.

The Ocean Corporation

5709 Glenmont, Houston, Texas 77081 (713) 661-0033

Ektachrome 100

TEXT AND PHOTOGRAPHY BY JIM AND CATHY CHURCH

Dedicated Ektachrome 64 users were surprised when their old standby disappeared from camera store shelves. Some eyed the replacement—Ektachrome 100—with suspicion. "What is it and what will it do?" were the two key questions asked.

GOOD-BYE 64

Ektachrome 64 had offered several advantages: First, it could be underexposed slightly to increase color saturation, without changing color balance, which is advantageous when prints are made from slides. Second, it didn't have the greenish tint we've seen with Kodachromes. Third, while Kodachrome users have complained that Ektachrome 64 was too blue, it produced rich blue mid-water backgrounds while Kodachrome backgrounds tended to be muddy purple. Fourth, Ektachrome 64 could be home processed with either the standard Kodak process or the shortened Kodak Hobby-Pac. Fifth, using Ektachrome Slide Duplicating Film, we believe you get better duplicate slides when going from Ektachrome to Ektachrome. Sixth, Ektachrome will last longer than Kodachrome when the slides are used for projection.

HELLO 100

The most obvious difference between the Ektachrome 64 and Ektachrome 100 is the higher ISO/ASA film speed. To explain the advantage of this, let's quickly review the relationship between film speed and exposure: The ISO (International Standards Organization) film speed is an indication of how much light is required to properly expose the film. The lower the ISO, the greater the amount of light required; the higher the ISO, the less light required. Each time film speed is doubled, the film requires half as much light for an exposure. Thus, you can use one stop less aperture for the exposure. As examples, assume that with a film rated at ISO 25, f11 is required for an exposure. If you switched to an ISO 50 film, you could make the exposure at f16; and if you switched to an ISO 100 film, you could expose at f22.

Thus, because 100 is two-thirds of a stop faster than 64, you can stop the aperture down two-thirds smaller. This produces three advantages: In low light, with the lens wide open, you can take pictures you might not have been able to take be-



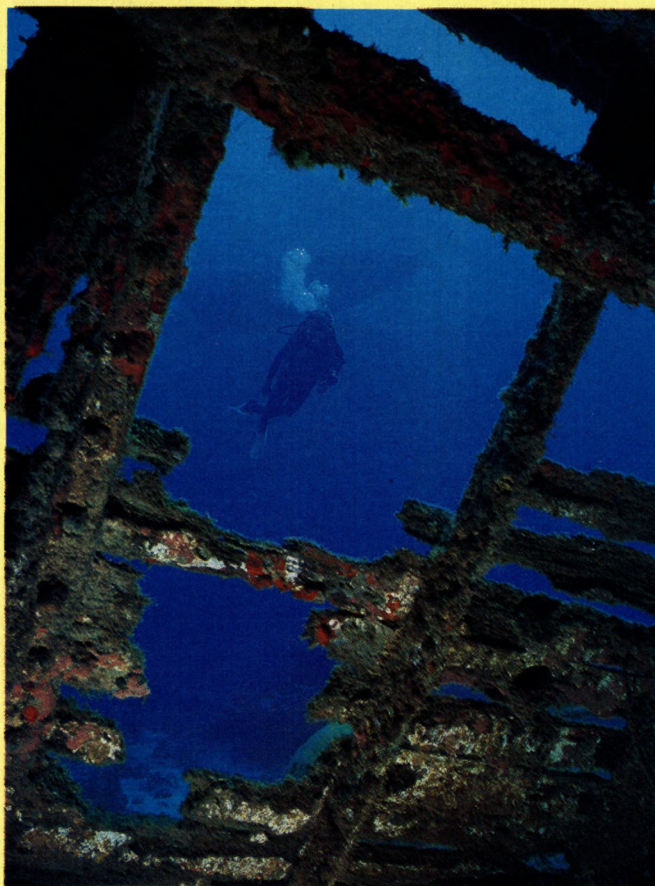
fore. In dim light, closing the lens by an additional two-thirds of a stop moves the aperture closer to the middle range of f stops that produce sharper images than the wider openings. And, because you can use a smaller aperture, depth of field (the range of acceptable sharpness from a point in front of the focused distance to a point behind) is increased.

The additional film speed is especially important for close-up photography if you

ing a Nikonos with a 15 mm lens; 1:1 and 2:1 extension tubes; a Nikon F2 with a 55 mm Micro-Nikkor; and a Nikon with a 200 mm close-focusing lens.

As far as sharpness goes, we couldn't see (using a 5X Kodak Loupe) any difference between Ektachrome 100 and Ektachrome 64. Even with close-up photography where the ability to record fine details is crucial, Ektachrome 100 maintained sharpness. There is a difference in color

film is still available in the professional version! The differences between professional 64 and consumer 64 are as follows: First, the professional version is shipped from the factory at the peak of its optimum color balance. Only outlets that will keep the film refrigerated (to slow changes in color balance and film speed) can sell it. Second, the effective film speed (within one-sixth stop) is stamped on the enclosed instruction sheet.



Opposite page:
Reflections at the bow
of the *Cartanser*
Sr.—Nikonos V, 15 mm
lens, f8, 1/90 second,
Subsea Mark 100
strobe. Far left: Looking
through bow of
***Cartanser*; same**
equipment and
specifications as above.
Left: Blennie; Nikonos V,
2:1 extension tube, f22,
1/90, Ikelite Substrobe
M. Below: Juvenile tang;
Nikon F in an Ikelite
housing, 200 mm macro,
f22, 1/60, Substrobes
150 and M.



are using a weak strobe. With a 2:1 tube (the image on film is twice life size), you may need ISO 100 so you can set the lens for f22 (an effective aperture of f64 with a 2:1 tube). With 1:1 tubes, you don't need to crowd the strobe in so close to your subject. With a Nikonos Close-Up Kit or other such supplementary close-up lens, you can set the lens for f22 rather than f16. And, when taking telephoto close-ups with lenses such as a 200 mm, the higher numbered aperture increases your limited depth of field.

OUR TEST RESULTS

During the past summer, Cathy has studied thousands of Ektachrome slides while critiquing students in our U/W photography courses. Thus, we have seen both Ektachrome 64 and Ektachrome 100 slides, of the same subjects, dozens of times. In addition, Jim, Cathy and Kathie Mullins shot a series of test rolls us-

rendition. Because topside photographers didn't like the bluish tint of the old Ektachrome 64, Kodak has warmed up Ektachrome 100. It is definitely less blue; whites tend to be whiter and grays grayer. Thus, in your U/W slides, warm reds and yellows will be brighter, but some of the rich blue in the midwater backgrounds will be lost.

Ektachrome 100 appears to have greater contrast than Ektachrome 64: light areas seem to go lighter; dark areas seem to go darker. Thus, we believe that Ektachrome 100 has less exposure latitude (the amount you can miss the correct exposure and still get an acceptable picture). When bracketing exposures, we suggest bracketing by half stops. If you have an automatic exposure control with one-third stop intervals, bracket by thirds.

Now, the good news for the diehards who standardized with Ektachrome 64 and don't wish to make the change: This

OUR CONCLUSIONS

You can standardize with one film speed—ISO 100—for wide-angle, normal angle and close-up photography. Gone are the days when you had to remove a partially-exposed roll from your camera because you decided to change lenses. Your exposure meter settings, exposure tables or guide number calculations don't have to be revised each time you change your style of photography. You will make fewer exposure mistakes once you become accustomed to this new film.

You can still underexpose slightly if you wish, but you may find that underexposing one-third stop produces better images than underexposing half a stop. While warmer than Ektachrome 64, Ektachrome 100 doesn't produce the greenish tint we sometimes find with Kodachrome, nor does it render blue-water backgrounds muddy purple.

Ektachrome 100 can be home proc-
(Continued on Page 50)

California Scallop Diving



TEXT AND PHOTOGRAPHY BY BUDD RIKER AND SUSAN SPECK

California divers enjoy a unique variety of seafood including many species of fish, abalone, lobster and the ever popular delicacy, rock scallops. There are many sites off the California coast that offer divers the opportunity to collect *Hinnites giganteus* since its range extends from British Columbia to the Baja peninsula. The sites with the greatest abundance of scallops are those exposed to the nutrient-rich upwelling of deep water, such as Begg Rock, Wilson Rock, San Miguel Island, Bee Rock or the off-shore oilrigs. The rock scallop is a bivalve that begins its life cycle drifting around with the currents in

a planktonic stage. When it is about one inch in size it settles to the reef. There its mantle secretes a limestone-like substance that cements the lower shell to a crevice or ledge out of direct sunlight. Scallops have several sensitive blue, yellow or orange eyes on the edge of the mantle. These are complete with cornea, lens and retina. They serve in defense, warning of intruders by sensing light changes.

Cemented to the reef, scallops spend the rest of their lives feeding on drifting plankton. While feeding, the shell is agape, exposing the orange or brown, fleshy mantle and giving the reef the appearance of

a smiling face. The outer surface of the shell is almost always overgrown with plant and animal life, providing it with excellent camouflage. With its shell closed the animal blends into the reef, making it very difficult for divers to see. While hunting for scallops, approach the reef carefully and maintain neutral buoyancy to avoid disturbing the area and causing the scallops to close.

The maximum size a rock scallop reaches is usually about 10 inches, although some specimens are slightly larger. Although there is no size limit on rock scallops it is best to take only the larger ones: The edible portion of the animal is only about one-fifth the size of the shell. California Fish and Game regulations require you to have a current fishing license and the daily bag limit is ten. You will need a sturdy dive knife or abalone iron to pry the scallop from its position. Some divers even use a crowbar for the really big and hard to get shells. You will also need a bag to hold your game.

Instead of taking the shells, some divers open them underwater and remove the muscle. If you do this you need a plastic bag in which to store the meat. This method disturbs the environment the least. It will also attract fish that will eat the discarded scallop parts.

Depending upon just how much of the shell is cemented to the reef, prying a rock scallop from its niche can be an arduous task. It is imperative to wear gloves to avoid injury to your hands. Prying tools have been known to slip.

With several scallops in your game bag you will be carrying several extra pounds in excess baggage. It may be necessary to bring along a liftbag to bring your haul to the surface, especially if your scallops

are large and heavily encrusted.

Some divers get so carried away they neglect to inspect their catch carefully. On one of our trips to Begg Rock one diver returned to the boat proudly displaying a 15 pound "rock scallop." After several attempts to open and clean it, he realized the "scallop" was a rock. The scene was quite entertaining for those on board.

Cleaning and preparing rock scallops is not at all hard, but does take a little care. Use an old cutting board because the shell will chew up the wood. Gloves should be worn to save your hands from the sharp edges of the shells and the marine life on them. A sturdy kitchen or small dive knife can be used to open the shell. These are hinged in such a way that they will only open about one-half inch until the ligament at the hinge is cut. Inserting the knife between the two shells and swinging the blade toward the hinge will cut the ligament and the shells can then be opened. Carefully slice close to the flattest part of the two shells if you want the meat in one piece. The "but-

tons" can be easily removed and trimmed or can be trimmed and left in the shell for cooking. Save the roe as it makes a great hors d'oeuvre when marinated and served on crackers.

A favorite way to enjoy scallops is raw with fresh lemon juice, but there are many great recipes. Our favorite is shish kabob style. First marinate the scallops for an hour or more in soy sauce. Then place them on a skewer along with bell peppers, onions and tomatoes. Place the skewers on a charcoal barbecue and lightly brown both sides. You can also lightly bread and saute scallops in olive oil just until brown. Serve with a cocktail sauce. With a glass of chilled white wine, these dishes are a fine way to cap off a day of good diving.

Rock scallops are a surefire way to tantalize the palate of any confirmed seafood connoisseur. The season is open year-round. One of the best incentives to put on your gear and jump in just might be the reward of a tasty scallop dish when you're finished. Good luck! 

Scallops can be hard to see.



Orange mantle of a rock scallop.



photo/Bonnie J. Cardone

Cut the ligaments to open shell.



Trim scallop "buttons."



Shish kabob scallops are great.



INTRODUCING THE CAYMAN AGGRESSOR

90' Luxury Dive Boat Becomes The Scuba Star Of The Caymans

TEXT AND PHOTOGRAPHY BY CARL ROESSLER

Every once in a while a new product suddenly alters our industry in a fundamental way. The introduction of the new *Cayman Aggressor* is just such an event! Gleaming white with green racing stripes, this 90 foot, all-aluminum super-cruiser is revolutionizing diving from its new home in the Cayman Islands. With her 15 knot speed, *Cayman Aggressor* can reach any dive site on the North or South Walls of Grand Cayman in one-half hour. In a mere four hours she can take up residence on Little Cayman's famed Bloody Bay Wall. Best of all, because she is a live-aboard dive cruiser her passengers can enjoy truly unlimited diving wherever she drops anchor.

Captain Wayne Hasson and first mate Ann Davis are ecstatic with their new charge. "We have it all—speed, power, even labor-saving devices such as an on-board laundry. This is a full facility floating dive resort," they told me. Wayne and Ann managed Casa Bertmar (now South Cove) for three years; hands-on experience which has uniquely qualified them to master the complexities of a ship of this size.

Cayman Aggressor is the awesome successor to the *Cayman Diver*, but the differences between them are like those between a space shuttle and the Wright brothers' plane at Kitty Hawk. The new vessel ushers in a new age of live-aboard diving in the Caribbean.

From a distance, the first outstanding feature we see of the *Aggressor* is a 40 foot elevated sundeck carpeted in artificial turf with chaise lounges and deck chairs. This high sanctuary is the most popular gathering place on the vessel, for both the bar and barbecue grill are installed here. According to Capt. Hasson, "It's so comfortable up here after dinner that people even fall asleep in the lounge chairs under the stars. I may have to stop piping the music up here."

When you want to dive, you descend to the well organized dive deck; here you have an individual storage bin/seat, with your tank mounted right behind you. *Cayman Aggressor's* 15 cfm compressors and cascade system allow you to dive as much as you wish; her easy stairs and wide dive platform allow several divers to enter or leave the water simultaneously.

For meals the saloon is spacious, with two large dining tables, a pull-out light table for photographers, slide projector and full video system. The spacious galley has three separate refrigerators and serves meals to satisfy every appetite from picky to gluttonous.

Ann Davis not only presides over meal preparation, but also operates a full photo store and darkroom. "With our 500 gallon per day water-maker, it's easy," she says. "I can process our divers' Ektachrome film in my darkroom. It's fully equipped. We also have gear for rent or purchase, film, even books for sale—like any well-run resort, except we are anchored on great diving 24 hours a day."

After the day is done, divers retire to seven air-conditioned cabins below decks. Four of the seven have double beds for couples and all have a mirror and table, plus accommodation for hanging street clothes. Groups can be as small as 12 or as large as 20. With fourteen people the seven cabins become private doubles.

In a brief article, it's easy to leave out details such as the fresh water shower on the dive platform, separate dip tanks for cameras and other gear, carpeted camera tables, boarding stairways that reach five feet down into the water, cushions, curtains, massive safety rails around all decks, brand new dive gear and tanks.

I'm running on, but you get the idea: *Awesome!* When the engines roar to life you want to rush to a seat and strap yourself in, for she throbs with thundering

power that means no wasted time between dive sites: Awesome. Wayne Hasson flashes a wicked grin, "Want to see her fly? We'll set a new record from Georgetown Harbor to North Sound and set up a tidal wave on Seven Mile Beach." He grins again, hand poised above the throttles. "Wait till some of the dive store groups see this." He moves his hand and the ship surges forward like a sports car.

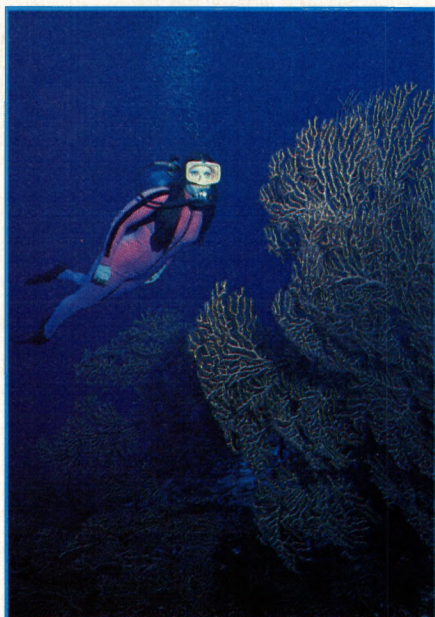
Diving from the *Cayman Aggressor* is a dream. Her dive platform is bigger than a Boston Whaler, with sturdy railings and ladders to accommodate even 400 pound divers. Everything aboard this vessel is far stronger than any other dive boat I've ever seen. Her heritage is the roughneck world of the Gulf Coast oilrigs, where 20 foot waves are common and the boats work 365 days per year.

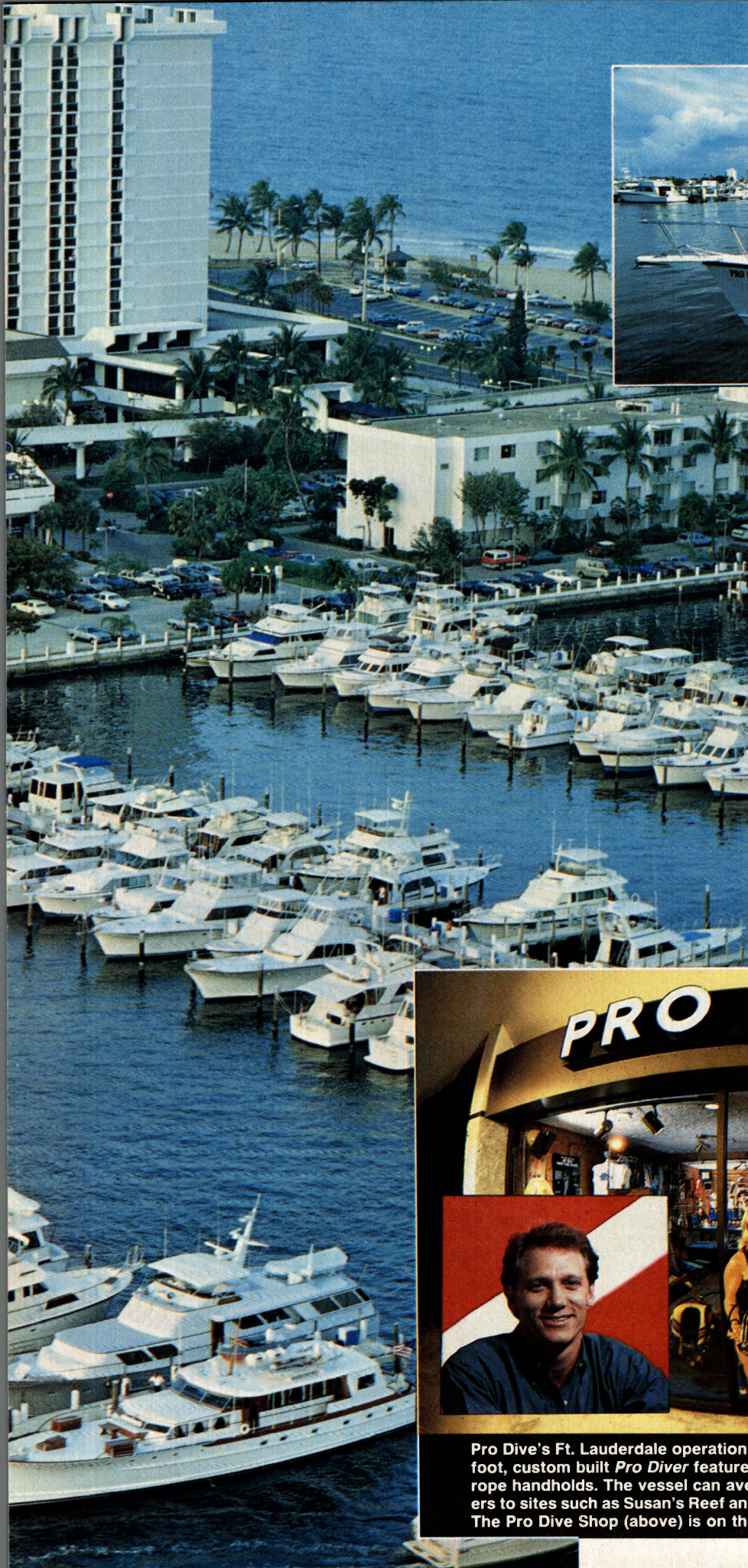
Cayman Aggressor is operated by Cayman Aggressor, Ltd., G. Burns Rutty, president. Rutty is a leading businessman on Grand Cayman, with the foresight to see the value of a first-class dive vessel for the island. The ship herself was designed and built by Coastal Marine, Inc., an affiliated company of Co-Mar Offshore, Morgan City, LA. She is but the first of a series of upscale dive cruisers See & Sea will offer the sophisticated dive traveler. Two sister ships will be built this year.

See & Sea Travel of San Francisco is the exclusive booking agent for individuals and charter groups. If you feel you've had enough of lugging dive gear back and forth to your hotel room; if you're tired of cattle boats; if you're tired of diving only at 9:00 am and 2:00 pm; perhaps it's time you joined the revolution. For further information or available charter dates contact See & Sea Travel Service, Inc., 680 Beach Street, Suite 340, San Francisco, CA 94109: (800) DIV-XPRT (in Calif. (415) 771-0077).



The 90 foot *Cayman Aggressor* can reach dive sites on the North or South Walls of Grand Cayman in one-half hour. A fully equipped, live-aboard cruiser, her passengers enjoy unlimited diving wherever she anchors. The stern platform (right) is huge and the spacious top deck is carpeted with artificial turf (bottom right).





Pro Dive's Ft. Lauderdale operation is at the Bahia Mar Yachting Center (left). The 42 foot, custom built *Pro Diver* features a wide stern platform (middle) with convenient rope handholds. The vessel can average 17 knots and is fully equipped to carry divers to sites such as Susan's Reef and Nurse Shark Reef, where lobsters can be found. The Pro Dive Shop (above) is on the Yachting Center grounds. Greg Mackay (inset).

Pro Dive celebrates its tenth anniversary this year. Established in 1975 by Greg Mackay, Professional Diving Schools of Florida, Inc., has certified thousands of divers and shown them the delights of diving Florida's Gold Coast. Initially oriented to serving the Deerfield Beach area, Pro Dive now covers the entire Broward County coastline. From the original two man operation, Professional Diving Schools and its counterpart Pro Dive Charters, Inc., have grown to a full-time staff of 15. Captains Steve Westervelt and Bill Cole direct the charter operations at Pompano Beach and Fort Lauderdale. Both locations are PADI Five

equipment bags. Camera gear can be safely stored in a lined box; Captain Cole makes sure that extra foam strips are available to help pad delicate equipment. Above the camera box, the work table with a raised lip provides a handy temporary resting place for odds and ends. Under the cabin's forward windshield, a shelf permits storage of soft dry goods.

Sun, salt and dry air generate a powerful thirst. For the passengers' convenience the bar tap supplies six different flavors of cold soda at no extra charge. If guests wish to rinse off photographic equipment or just wash the salt out of their hair, the freshwater shower is always available. Attention to divers' needs shows in such details as freshwater rinse buckets at both transom walkthroughs. And, hanging from the wide dive platform are comfortable rope handholds for those awaiting their turns to climb back aboard.

The 42 foot Commercial Boatworks hull rides choppy seas easily. At an average 17 knots the diesel powered *Pro Diver* cruises comfortably. Equipped with everything from Loran-C to an underwater recall system, the bridge has all the necessary electronics for island excursions. If requested, while exploring the reefs and wrecks, Captain Cole will gladly play a diver's favorite music through underwater speakers. The easygoing and friendly personalities of Pro Dive's captains make a big difference on any trip. Both Captain Cole and Captain Westervelt enjoy meeting all the passengers. Since they've been diving the area non-stop for over ten years, they've gained an intimate knowledge of the ocean. It is no surprise that they guarantee over 60 different reefs and wrecks.

Non-divers come to Bahia Mar too. Many people enjoy their first snorkeling or scuba experience with one of Pro Dive's instructors. Introductory courses make up just the beginning of the instructional program. With accelerated training classes offered on a private or group basis, any neophyte can emerge as a basic diver in as little as three or five days. On a week's vacation a guest can grow from a novice snorkeler to an open water certified scuba diver. Professional Diving Schools of Florida gladly offers the open water portion of certifications for out of town student referrals. When divers opt for a personal divemaster, they discover this service includes as much before the dives as during the underwater tours. After a slide show on local diving, the divemaster reviews various boat diving procedures and techniques such as the various entries and exits. Ocean diving orientation includes familiarization with drift diving. In addition to helping with marine identification during both dives, these divemasters will assist visitors with their favorite underwater activities; the guides will search out animals to pose for a camera buff or lend a hand in catching a lobster. Such considerate service adds to

the enjoyment of experienced divers as well as newcomers.

Pro Dive speaks proudly of its repeat customers. Many former students return to participate in advanced specialty courses. Although all the major specialties are offered, night, wreck and deep diving are the most popular. As part of the master diver program, people often return to take search and recovery, rescue diver or U/W photography courses.

With PADI course director Eleanor Klein, a diver can reach the instructor level. While many business professionals want to attain these educational goals, long course schedules make this impossible. Consequently, on a private basis, Pro Dive goes out of its way to design personal time-tables. With the store, classroom, pool and boats all on the Yachting Center's grounds, anyone will find these programs fun and convenient.

Bahia Mar Yachting Center lies between the Intracoastal Waterway and the Atlantic Ocean. With Fort Lauderdale/Hollywood International Airport only five minutes away, Bahia Mar is easily accessible. The resort's elaborate facilities and competent staff would make it a success wherever it was located. Besides the hotel with its 300 deluxe rooms, the marina has 350 slips for yachts of all sizes. Within the complex are a half dozen restaurants and lounges and several shops ranging from a general store to a weather station. Bahia Mar can arrange a one week sailboat cruise or a one day car rental. From the full sized heated swimming pool on the second story the student diver can view both the busy waterway and the ocean. Some visitors never want to leave the 40 acre resort. Since the Bahia Mar Yachting Center sits on the famous Fort Lauderdale strip, an incredible selection of dining and entertainment establishments lie within a short walk of Bahia Mar's main gate.

Pro Dive has coordinated several different types of vacation packages with Bahia Mar. For as little as \$40 per person per day on a three day weekend, a buddy team can check into the Yachting Center. During the season, this price rises slightly to \$55. The fee includes a double occupancy room and a two tank half day diving charter. Rental gear is available at minimal rates. When you call on Pro Dive's WATS line, the diver will most likely speak with store manager, Dana Becker. When synchronizing large diving groups, Dana has been known to work minor miracles. In fact, having given Becker a rooming list and rental equipment requirements over the phone, group leaders do not need to show up until check in time at the store on the first diving day. If guests of the hotel bring their personal gear to the shop, the Pro Dive staff will transport the equipment, as well as any rental supplies, to the boat slip.

Pro Dive and Bahia Mar provide so much that many vacationers find the only

BAHIA MAR

PRO DIVE'S Headquarters
Hotel In Ft. Lauderdale

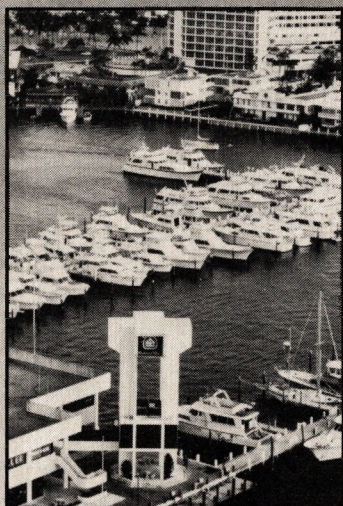
TEXT AND PHOTOGRAPHY BY
MARK M. LAWRENCE

Star training facilities and Diving Ventures International resorts. Greg Mackay credits the long term success of Pro Dive to his staff's ability to provide professional and personal service. Files of unsolicited testimonial letters document the achievement of these goals over the years. The popularity of Pro Dive's operations with divers shows well at the Bahia Mar Yachting Center in Ft. Lauderdale.

To help maintain the same standards that carried Pro Dive through the first eight years at Bahia Mar, the charter operation has bought its third custom built dive boat, the *Pro Diver*. As with the operation's other charter boats serving the Pompano Beach area, the *Experience* and the *Sharkbiter*, the newest boat was laid out specifically with the scuba diver in mind. Walking aboard the *Pro Diver*, the visitor's first impression is of uncluttered spaciousness. This roominess stems not only from the custom design, but as Mackay pointed out, "The boat is certified for 40 passengers, but we have set it up for 24 divers." By only placing 12 divers on a side, there's plenty of room for two tanks a piece as well as

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PRO DIVE/BAHIA MAR

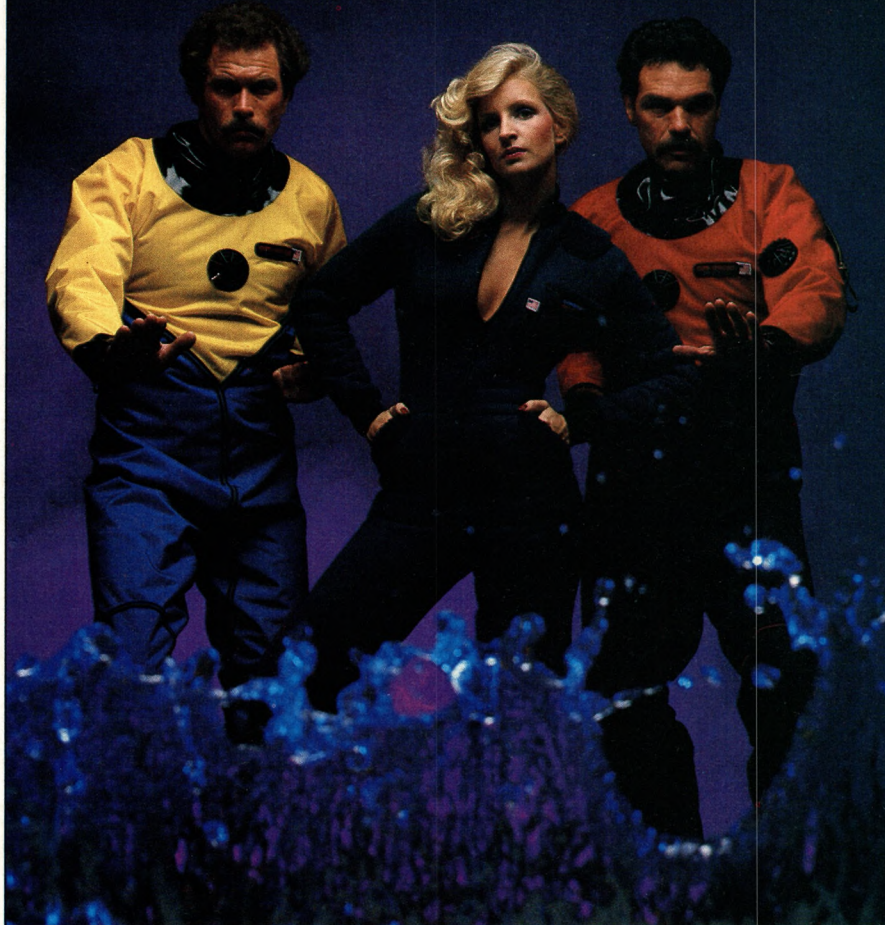
problem is trying to decide which dive site to visit. Always open to suggestions and requests, Cole selects the locations after reviewing the experience level of the divers. One of the captain's favorite spots is Susan's Reef. South of Dania's pier, this ledge system runs from north to south. Open water qualified divers enjoy drifting along it. Seasoned scuba divers who have not yet tried drift diving may travel with a divemaster. By touring in small groups of two to six people, visitors have the greatest freedom of movement. While the guests explore the bottom, the *Pro Diver* maintains a patient watch on the surface.

Crossing Susan's Reef in a boat, the bottom profiler will display thick fish life for at least ten feet above the actual reef top; in some places large schools reach the surface. With the reef top at 45 feet and the white sand bottom at 55, divers enjoy lengthy bottom times. In a south current, the diver starts on the east-west ridge marking the northern edge of Susan's Reef. As the drift teams descend, vast congregations of grunts and snappers slowly part. Loggerhead turtles often sleep here. Waiting for the return of nighttime in the dark undercuts, cardinal-fish and copper sweepers mill about aimlessly. Further back under the ledges, lobsters hide. Dotted with basket sponges, seafans and small coral stands, the reef face varies subtly during the dive. The Hollywood Bowl forms the southern end of this reef. This circular depression hosts a great variety of marine life.

For the second dive many people request Nurse Shark Reef. As with the previous dive site, this ledge system runs in a north to south direction. The top crests only 15 feet below the surface; the sand lies at 25. Small horseshoe cuts dissect the ledge. Just east of the drop-off, wide, isolated coral heads parallel the edge. In the deep recesses, that can extend as much as 20 feet, nurse sharks retire. If the explorer is careful and gentle he/she may pet these slumbering fish. Too much activity will awaken these shy creatures. Caught up in a mild panic, they blunder past the divers into the bright daylight. Nurse Shark Reef has long been a favorite site with local lobster hunters.

No stay at Bahia Mar is complete without a night dive. By participating in the morning charter the guest can have three dives in one day. Such a profile creates a safe surface interval and ample time for relaxing in the sun. Night divers rendezvous at the store to sign in and pick up rental cameras and lights. If needed, divemasters can escort less experienced divers on 30 foot anchor dives. Certified night divers and students in advanced

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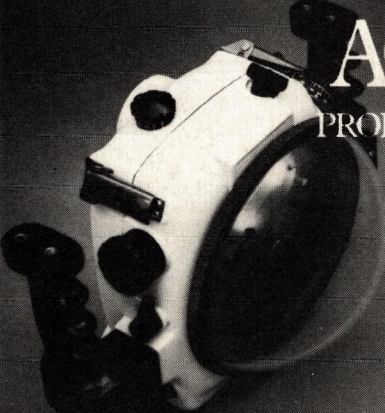
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PRO DIVE/BAHIA MAR

classes may drift on the deeper reefs. Allowing the current to slowly carry you down the reef is one of the most satisfying ways to night dive. Hammerhead Reef is well suited for this. Basically similar to Susan's Reef, this ledgeline breaks up into numerous pockets. In these alleyways all kinds of creatures find refuge.

As the Pro Dive Shops celebrate their tenth anniversary, it's easy to look forward expectantly. In the ten years since Mackay started Professional Diving Schools of Florida, the organization has undergone many changes. Throughout its growth, Pro Dive has continued to offer quality instruction. Operating hand in hand with Bahia Mar Yachting Center, Pro Dive has been able to offer great diving vacations. The next ten years will undoubtedly bring new changes, but the present standards of professionalism and personal service will create the framework for Pro Dive's future endeavors.

CONTACT LENS RESEARCH

A contact lens specialist in Hamburg, West Germany is conducting a research project on the problems of diving while wearing contact lenses. The project is being supported by the leading contact lens manufacturers in Germany and by various diving organizations. The research will include scientific studies as well as pressure chamber and open water tests.

Those who wear contact lenses while diving are asked to submit a resumé of their positive or negative experiences. In addition to this each diver is asked to answer the following questions:

1. What type of contact lens do you use when diving? (Please give exact details, i.e. normal hard lenses, rigid gas permeable or soft lenses. If using soft lenses, then which grade of softness?)
2. Please name the manufacturer and the brand name of the lens.
3. How many dives per year are made wearing contact lenses and what are the average depths and times?
4. Are decompression dives made and are any side effects noticed in connection with the contact lenses?

Please direct your reply to Bob Michelson, Jenfelder Str. 9A, D-2000 Hamburg 70, West Germany.

DON'T TOUCH FLARES

A Palm Bay, Florida diver recently received third degree burns from a military distress phosphorus flare he found while diving. At his home the flare became activated when he accidentally stepped on it. Divers are requested to leave such devices where they are found and contact their local fire department or local Army Ordnance Detachment.

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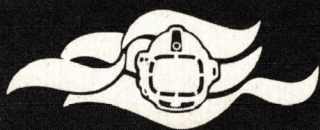
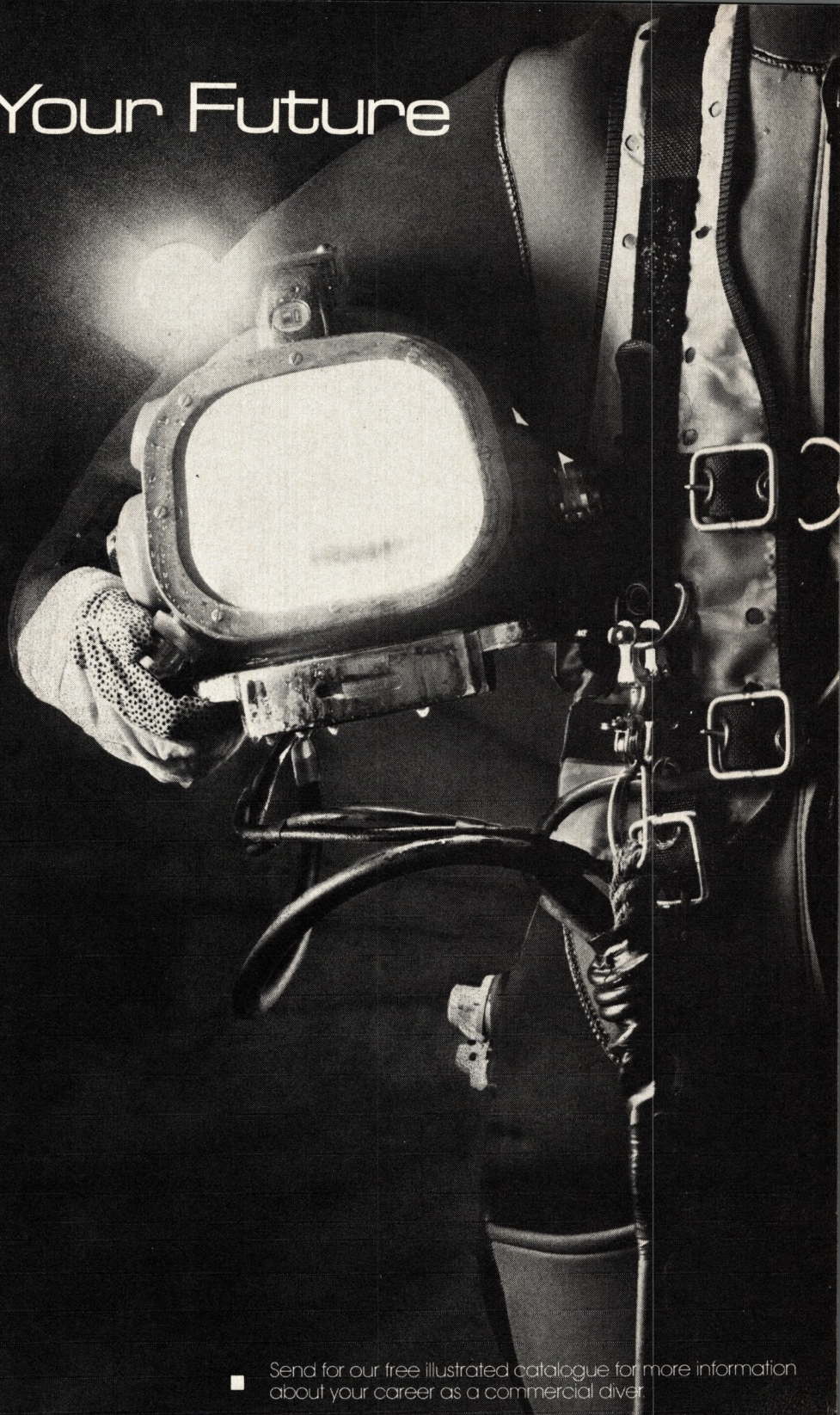
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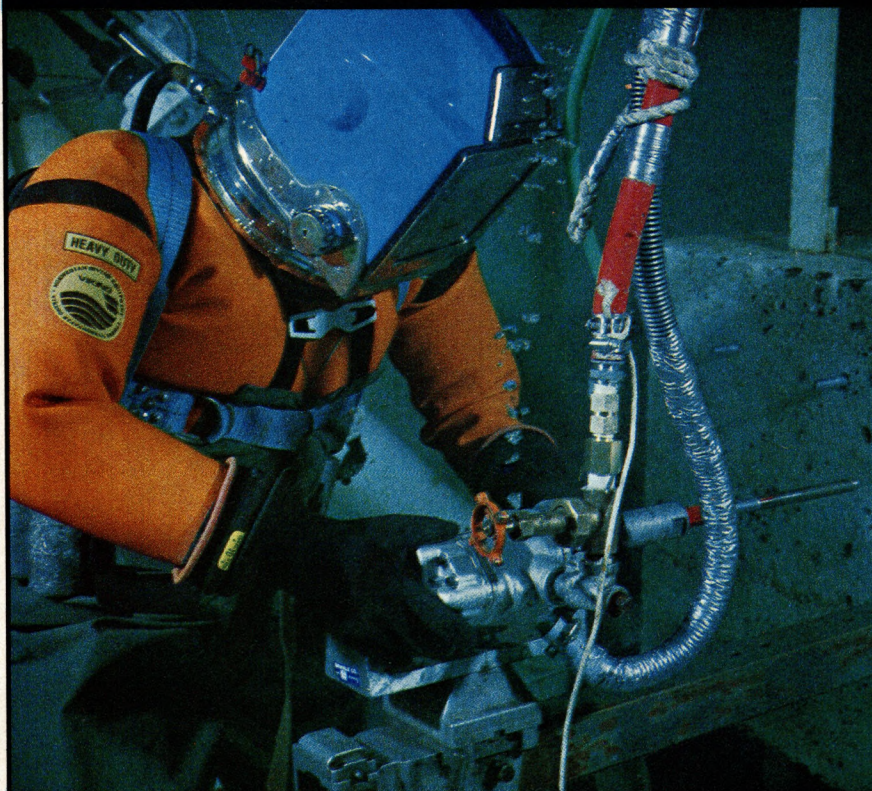


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FENNELL TO NIKON

Nikon Inc. has established its first Nikonos Products Department, representing a major expansion of its marketing program for the Nikonos underwater line. The department will develop new programs for camera dealers, the traditional outlets for all of Nikon's 35 mm cameras and photographic accessories, as well as for scuba diving equipment specialty retailers throughout the United States.

These programs will be developed and implemented by Frank Fennell, who has joined the company as marketing manager of the Nikonos Products Department. Fennell, experienced in the marketing of underwater products and services, is certified as a scuba instructor and underwater photographic instructor by four leading international organizations.

Fennell stated that the new Nikonos marketing program will include special educational and promotion programs for dealers, point-of-purchase materials and advertising campaigns in consumer and trade media. ✕

IUC ROV TRAINING

To meet the increasing demand for trained ROV (Remote Operated Vehicle) operators, the Professional Diving School of New York, Inc. (PDSNY), a subsidiary of International Underwater Contractors, Inc. (IUC), has opened the Underwater Vehicle Training Center (UVTC). The center has been established at Houston, Texas, with the first course scheduled to begin this month.

This facility has been established to fill the need for highly trained ROV operators, a requirement that many ROV service companies have found to be very costly and almost impossible to fill. UVTC's facility is complete with various ROV vehicles and training tank, and will offer the only training program of its kind in the world.

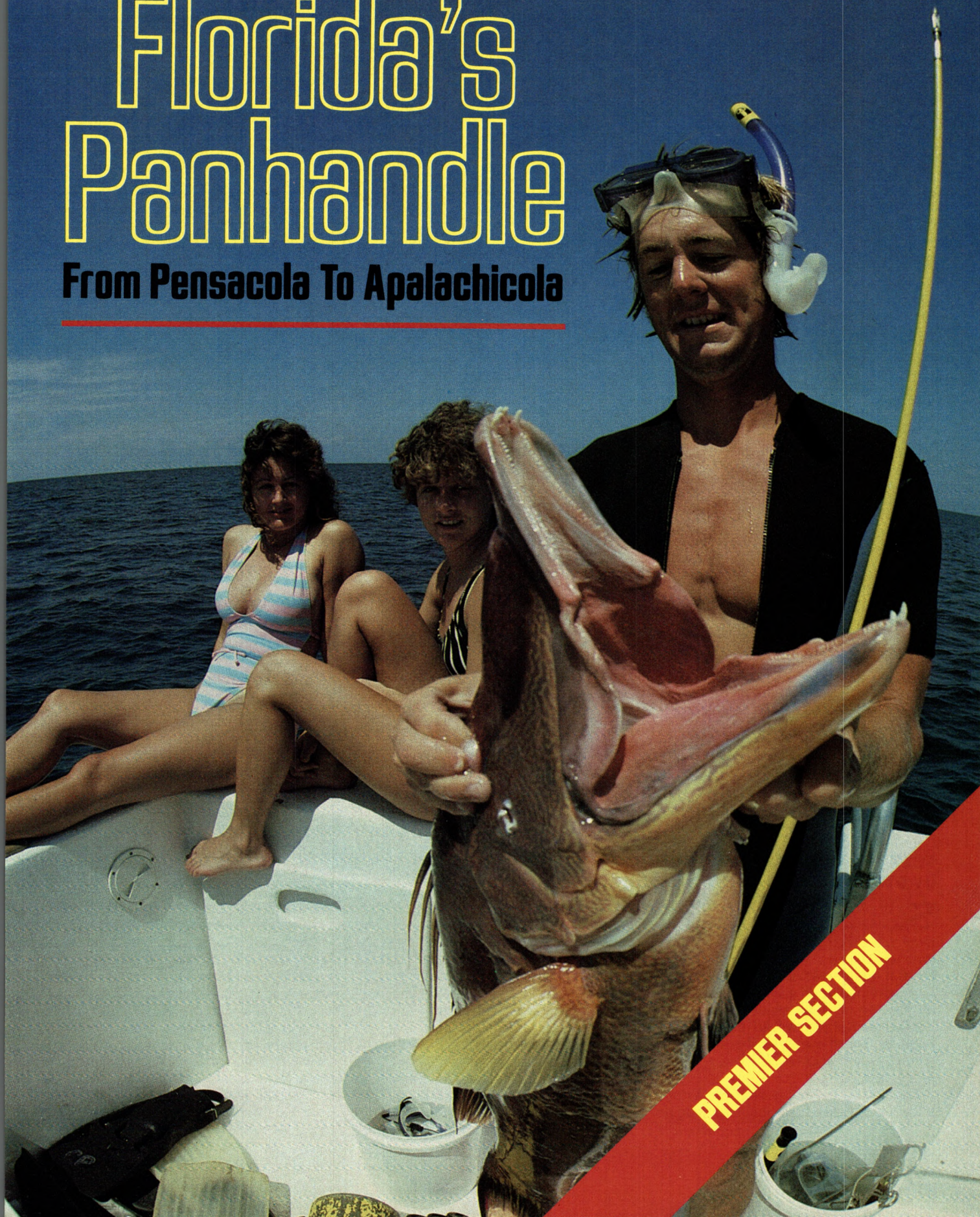
The course objectives have been determined from a detailed study of the actual at-sea range of tasks and operations undertaken by experienced vehicle pilots presently active in the field with IUC and other ROV service companies. ✕



"You said we'd dive near an old wreck. I didn't know it was your mother-in-law."

Florida's Panhandle

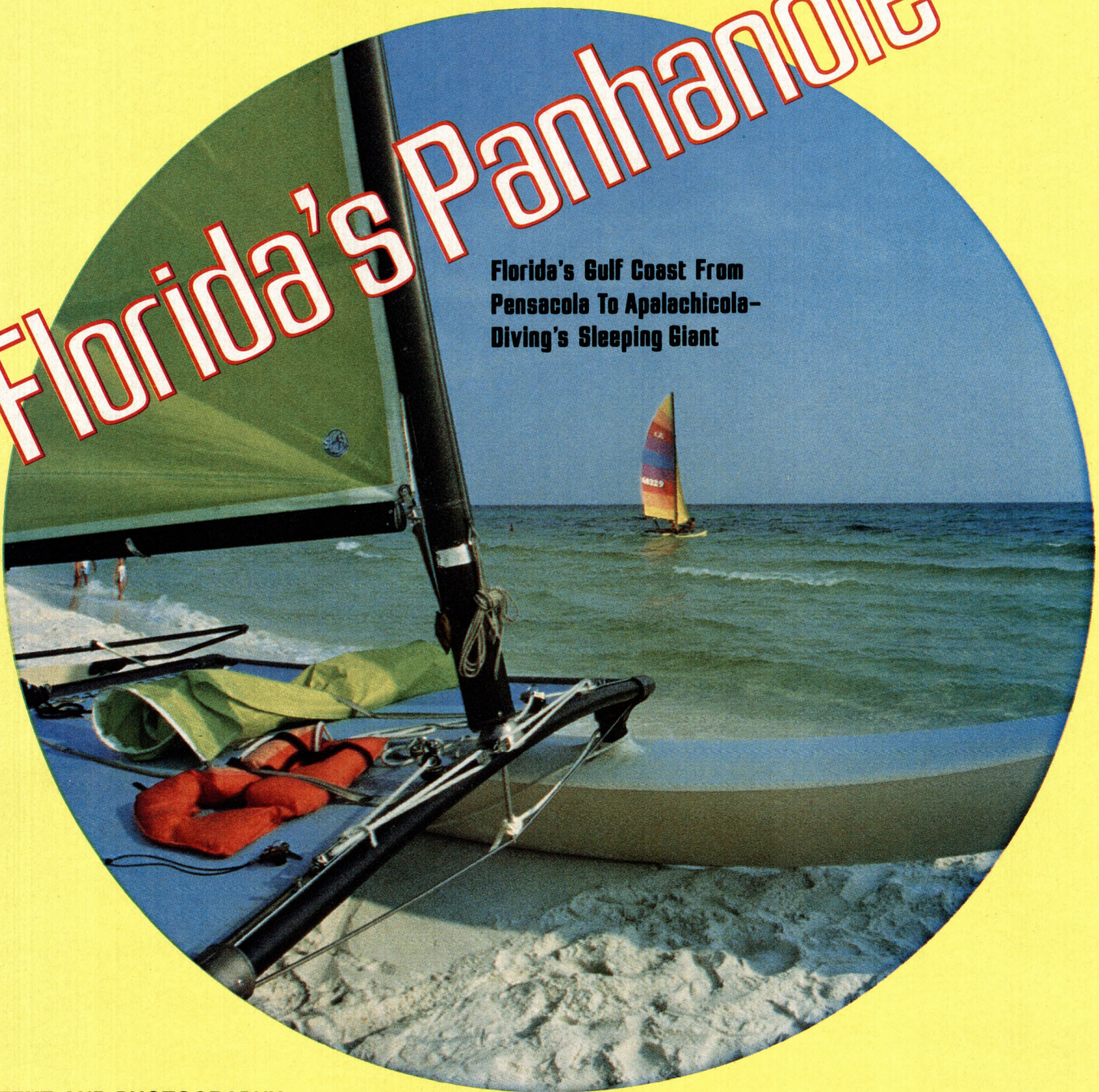
From Pensacola To Apalachicola



PREMIER SECTION

Florida's Panhandle

Florida's Gulf Coast From
Pensacola To Apalachicola—
Diving's Sleeping Giant



TEXT AND PHOTOGRAPHY BY STEVE LUCAS

Sugar: An unending oceanfront of sugar. White, not quite granulated, almost powdered, crystalline sugary sand. Washed by the surge and blown by the wind, it has perpetually piled and gracefully mounded upon itself. Bleached, as if by the sun, it is an asset of which any Caribbean island would be envious. Wide, and to the eye, limitless, it is the type of beach vacationers dream of, but rarely find.

Out of season you can stand on a dune a few yards from your room and imagine yourself on a lost island. In season, it is

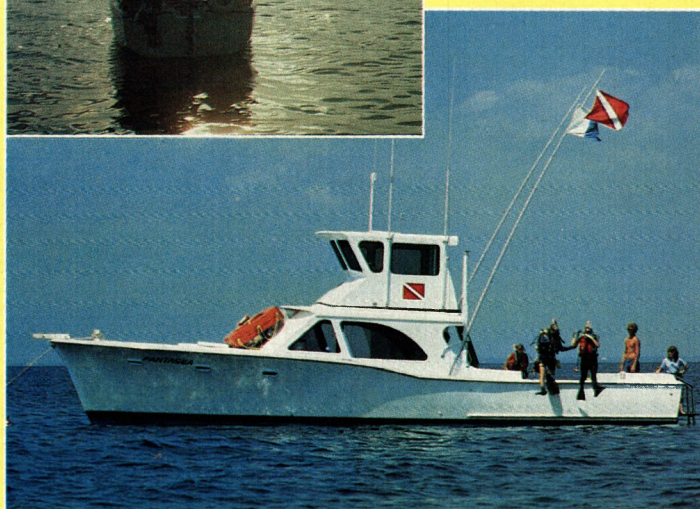
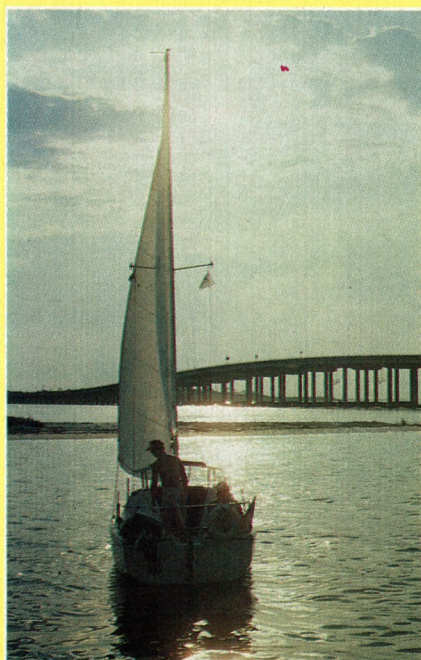
a five month long beach party. One complete with roller coasters, log flumes and dozens of other carnival rides. It's a place where dolphins leap and parrots perform, a place of discos and dinner shows. From Pensacola to Fort Walton and Destin, on to Panama City Beach and Port St. Joe, this is Florida's Emerald Coast.

Rolling into the water, I was startled by the clear, yet unfamiliar emerald color. Quite transparent, there is a tinge of green instead of the familiar blue. This part of the Gulf of Mexico teems with nutrients; it is a nursery ground for much of

the Caribbean basin. The planktonic color is reflected throughout the water.

With such a great supply of food, the reefs have vast schools of barracuda and amberjack. Cigar shaped baitfish hover and swim in orchestration above sponge covered natural and artificial sites. They part like a curtain draped over a wonderful underwater stage production, allowing divers to enter and view the ceaseless show just beneath them.

In depths shallow enough for a novice, on out to those that require advanced diving skills, ancient limestone reef breaks



Opposite page: White, sugary-looking sand beaches are found all along Florida's Gulf coast from Pensacola to Panama City Beach and beyond. Clockwise from above: Dive boat *Fantasea* out of Destin; sailboat at Destin Island bridge; diver and frogfish at Timberholes; diver and hairy blenny at White Hill Reef; the United States Naval Aviation Museum at Pensacola Naval Air Station is open to the public at no charge—just obtain a pass.



Panhandle

filled with crevices are pocked with holes and staggered with overhangs. Basket and barrel sponges sit alone on the sand.

Dropping through the layers of free swimming fish, a diver finds the bottom looking like an abstract artist's palette. At first bland in the subdued light, it jumps out like a psychedelic vision with the flash of a strobe. An ideal habitat for fish and invertebrates to grow, it is also the perfect environment for *Panulirus argus*: the Florida spiny lobster. Of all the places the crayfish is found in the state, this one seems to suit it best. With little or no commercial catches, the creature has thousands of square acres of bottom cover in which to hide and grow. Here, it averages meal size; family meal size. Four and five pound crustaceans are considered small to those who hunt them regularly. During the season, these are brought to the boat on almost every dive.

For aquatic hunters, this underwater terrain is some of the best and most exciting in Florida. A large, level shelf that descends gradually and is diveable 20 miles from shore, it provides an excep-

tional amount of cover for game fish. They become large—very large.

Hog snappers, weighing 15 pounds or more, are not considered unusual. Large groupers hide under the ledges or hang just on the edge of visibility, always trying to slip away when a diver approaches. Fifty pound amberjack circle the wrecks and reefs, suddenly darting within a few feet of a spearfisherman as if daring him/her to shoot.

Diving and underwater hunting are not the only vacation attractions in Florida's panhandle. Each coastal city has its own atmosphere and moods. Pensacola, one of the most historic cities in the northern part of the state, was settled in 1559. A restored area of turn of the century Pensacola has ornate, clapboard store fronts. There are fine shops, restaurants and a live music saloon called Rosie O'Grady's.

Across Escambia Bay is one of the state's oldest military citadels, Fort Pickens. It is now a part of the Gulf Islands National Seashore. The fort, on Santa Rosa Island, was once used as a prison for leaders of New Mexico's Apache Indian nation. Today, it is open for guided and self-guided tours.

From the fort, the aircraft carrier U.S.S. *Lexington* can normally be seen in its home port, the Pensacola Naval Air Station (NAS). Home to the Navy's Blue An-

gel precision flying team, the base is open to the public: Request a visitor's pass at the gate. NAS has numerous museums and displays of interest. The largest, the United States Naval Aviation Museum, displays dozens of original antique and modern Navy flying machines as well as large, scale models of aircraft carriers and other naval vessels. In the center of the main exhibit floor, the actual Skylab Command Module is on display.

Offshore, Pensacola has an excellent array of dive sites. In addition to its scattered natural reefs, there is a notable submerged fleet of wrecks, both accidentally

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and purposely sunk. The shallowest of the major sites is the deteriorating hulk of the U.S.S. **Massachusetts**. In 30 feet of Gulf water, the ship is over 350 feet long and can be seen at the surface during low tide. Reef fish common to the Caribbean, such as angels, damsels and butterflies can be found scurrying throughout its rusted bulkheads.

Farther out, a 400 foot Russian freighter, with the dubious Latin name of **San Pablo**, is a true World War II relic. Hit by a German torpedo in the Florida Straits, it later sank in tow after repair efforts were abandoned. Popular for col-

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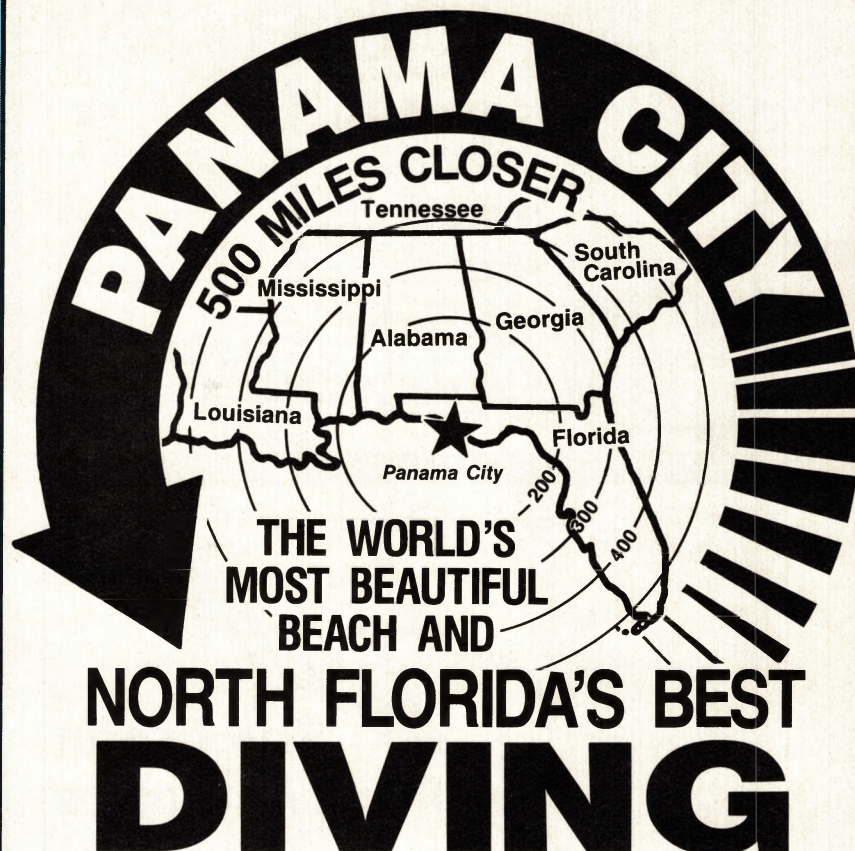
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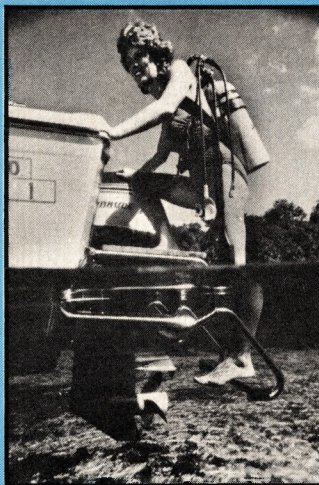
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Panhandle

lecting delicate spiny oysters, its 80 foot depths make it one of Pensacola's most enjoyable sites. Other wrecks include one known only as the **Brass Wreck**. A late 1800s schooner, its beams, ballast, ribs and other gear remain scattered in 85 to 100 foot depths.

There are several artificial reef sites: a liberty ship, ten miles out of the pass with 20 feet of relief in 80 foot depths; rubble from an intercoastal waterway bridge; an old oil drilling tower; three coal barges; and a 130 foot long transport airplane. All have populations of barracuda, amberjack, snapper, grouper, schooling baitfish and colorful tropicals.

Out of the East Pass, between Fort Walton Beach and Destin, the natural reefs come closer to shore. Some are mere patches of limestone on a sandy bottom. Others resemble stairstepped underwater amphitheaters. Dozens of reef locations are marked on the maps of local charter dive boats. Dozens more have never been found.

Many of the most exciting are in the 80 to 100 foot range, making careful monitoring of depth and bottom time mandatory. Others are shallower and more suitable for ocean divers just beginning to develop their skills. Out in 105 feet is perhaps the most exciting single reef in the area. Staggered like giant theater seats, rising in upward tiers to 15 feet above the sand is **Timberholes**.

Just below the surface, an invading army of barracuda rise quickly to inspect each intruder, parting like sentries, allowing you to pass. Herds of silvery spadefish play follow the leader, barreling into sight, then quickly turning to retrace their paths. Below, the bottom is obscured by 100,000 cigarfish, swimming in unison to a silent *Fantasia*. In mass, they ripple in waves, rushing to surround you in a metallic sea. Out over the sand, gray ocean triggerfish, in clusters of twos and threes, constantly cruise their territory.

On the rocks, plastic looking frogfish lumber along, using their pectoral fins as legs. With their bizarre color schemes, they seem to dissolve into the environment while silently waiting for an unwary prey. Lobster hide in the fissures, their protruding antennae the only evidence of their presence. Under the ledges, spiny oysters, gem-like cowries, tiny jewel boxes, lion's paws, queen helmets and other shells cling to the rocks using only their natural camouflage for protection.

Numerous other reefs are similarly populated, although perhaps not quite as dramatically. Known as **Amberjack Rock, Long Reef, The Eighteens, Frangista, Four Anchors, Red** and a

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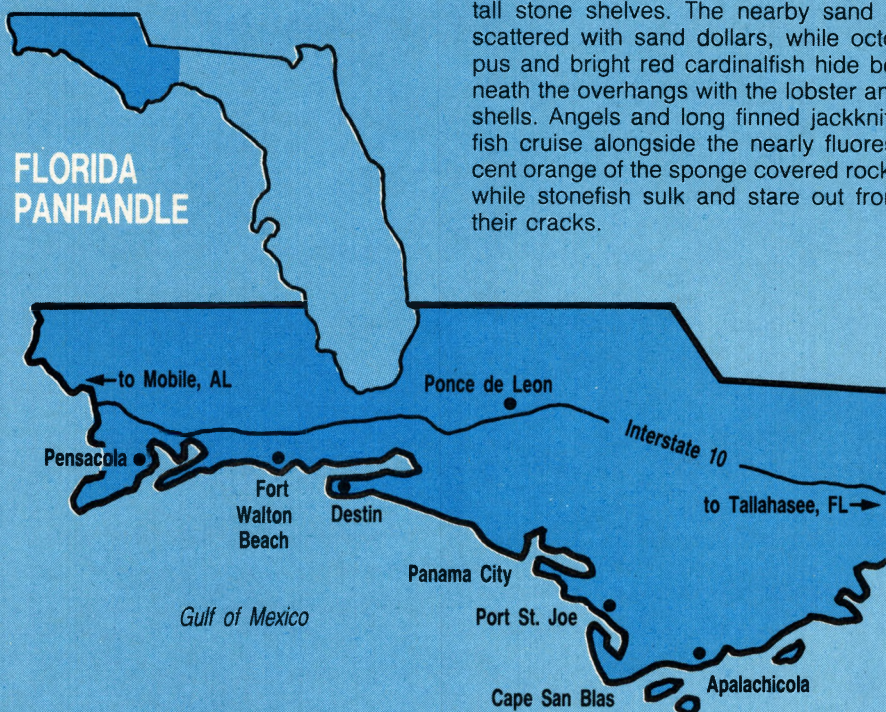
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FLORIDA PANHANDLE

dozen other colorful names, they are all similar, but have their own unique features. **White Hill**, in 80 feet, is stretched along the bottom with two and three foot tall stone shelves. The nearby sand is scattered with sand dollars, while octopus and bright red cardinalfish hide beneath the overhangs with the lobster and shells. Angels and long finned jackknife fish cruise alongside the nearly fluorescent orange of the sponge covered rocks while stonefish sulk and stare out from their cracks.

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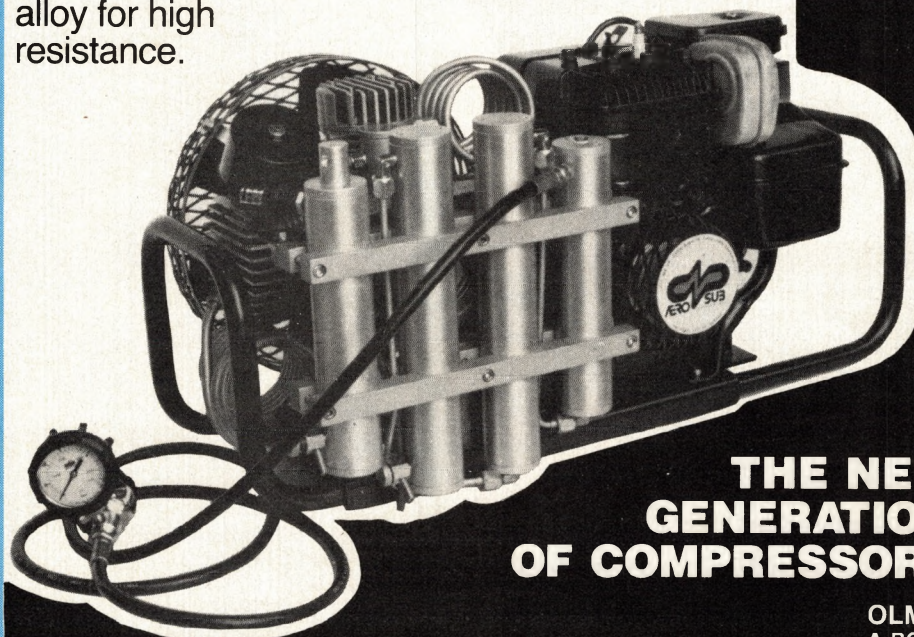
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SKIN DIVER JANUARY 1985 43

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Panhandle

Wrecks and artificial reef sites lie both near and well offshore. Tugboats, liberty ships, shrimp boats, barges and airplanes are found in depths from 60 to well over 100 feet including one I remember well: **Crash Boat Number Seven.**

A Navy LST landing craft, it is where I first snapped a roll of underwater photographs. In over 100 feet of water 20 miles out, its hulk is cruised by a torpedo shaped task force of barracuda and dec-

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orated by dozens of bright yellow and blue angelfish.

The lazy sport fishing villages of Destin and nearby Fort Walton Beach are quiet towns turned tourist cities. Called the Playground, condominiums and major hotel chains such as Holiday Inn have turned parts of these beaches into vacation (or permanent) villas for anyone.

Rows of red, blue and yellow umbrellas line the sand offering temporary refuge from the sun. Children, some young, some old, build sand castles with their pails and shovels. Twin hulled catamarans race with one keel high while boardsailers tack back and forth into the wind constantly searching for the elusive

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SKIN DIVER JANUARY 1985 45

Panhandle

wave to jump.

The bays and harbors are lined with party boats, sailboats and sportfishing fleets. Their names tease you to try your luck: *New Florida Girl*, *Barracuda II*, *Break-A-Way*, *Patti Ann*, *Sandkicker*, *Serenity*. On these, and others, fishermen come to angle for marlin, sailfish, mackerel, wahoo, cobia, dolphin, pompano, tarpon and blackfin tuna during a literal year-round season.

East of Destin, in an area of natural Gulf seashore, long stretches of the seafront can become very private playgrounds. Mile after mile of untouched and undeveloped beachfront separates the rounded sea oat dunes from the emerald

water. Here, you can walk out of a sunrise and into a sunset, possibly without seeing another soul.

At the sunrise end of this wilderness beach, the scenery begins to look like an unending circus. Ferris wheels spin, roller coasters careen, log flumes splash and tilt-a-whirls tilt at several beachfront carnivals. A party atmosphere seems to perpetually prevail in this city that obviously enjoys being near the water: Panama City Beach.

At Gulf World, on the beach and the Gulfarium in Fort Walton Beach, the ocean puts on a show for everyone. At both attractions, dolphins and seals perform, sharks, turtles, rays and tropical fish glide behind glass and tame macaws and cockatoos perch on your shoulder amid lush tropical plants. Gulf World has even added a new dimension to this terrestrial ocean: a chance to scuba dive behind glass. By special arrangement, divers can enter the large tanks.

North of Panama City Beach, well away from the Gulf of Mexico, a totally different type of diving is popular: freshwater springs. At least a dozen sites are open to divers including the **Chipola River**, a popular spot for artifact hunters. Two of these flows, both near Ponce de Leon off Interstate 10, have exceptionally clear water and actively promote diving.

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*Drawing January 31, 1985. Meals and taxes not included.

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Morrison, near the Choctawatchee River, is surrounded by large, lazy-looking cypress trees which lead the half mile run down to the river. With deep-south Spanish moss hanging from their branches, they encircle the spring which contains two cavern openings. Sloping to a vertical limestone drop, the first is found at 30 feet and the other near 50. The large spring constantly jets a purified supply of fresh water from deep within the ground. Either cavern is safe to enter and neither can be penetrated beyond the natural light. With camping and basic dive facilities, this is considered by local divers to be one of the best spring sites in Florida.

Vortex is a completely self-contained freshwater dive resort. With camping, dormitory accommodations and dive center, the spring is 200 feet wide at the surface. It reaches a depth of about 50 feet before becoming a cavern that can be explored back to the end of the natural light zone. Beyond, it becomes a long cave system. Equipped for student check-outs, the spring has a staging platform placed in shallow water on which novices can complete basic exercises before entering deeper water.

Diving from Panama City Beach through Port St. Joe can be described in one primary word—wrecks. Although there is no shortage of natural reefs equal in color and population to those near Destin, this coastal area has an enormous population of derelict vessels on its seafloor. A local guide book to Panama City diving describes some 20 wrecked ships, tugs, planes and barges.

Some, like the 105 foot long tug, **Grey Ghost**, were purposely sunk as artificial reefs. In just over 100 feet of Gulf water, the *Ghost* sits upright, leaning slightly to starboard on her keel.

Schools of snapper roam from her stern to her bow while working their way through her open bridge. Amberjack slip in and out of view as they circle the schools of baitfish. Inside her hull, spiny oysters and other shells adhere to the rusting metal.

Closer to shore, only 70 feet down, the **Chickasaw** is a more recent addition to these man-created reefs. With open framework above deck, she has become host to an occasional jewfish and thousands of small, metallic baitfish.

On the seafloor for more than 40 years, the wreck that yields the most, both in collectible treasure, fish life and local lore, is the one considered by many to be the ultimate wreck dive in the state of Florida: the **Empire Mica**.

The British tanker was on the return leg of her maiden voyage when the Germans found her.

On June 29, 1942, 21 miles off Appalachicola, near the shoals of Cape San Blas, her explosive cargo brought an eerie light to the night ocean sky. Miles up the coast, the explosion and fire could be heard and seen. Thirty three men died.

With two torpedoes ripping away the bulkheads on her port side like aluminum foil hit with an explosive sledge hammer, she drifted for a day, finally sinking in just over 100 feet.

Sixty feet above the sand, her bow is mobbed with 'cuda. Hundred pound amberjack constantly chase each other across her bulkheads. On her deck, 70 feet below the surface, a 25 foot spare prop lies flat. Ladders lead down through open hatches, portholes remain attached. Thousands upon thousands of tropicals, almost every conceivable Caribbean variety, as well as a constant parade of game fish, flow through the high profile, rotting plates of steel.

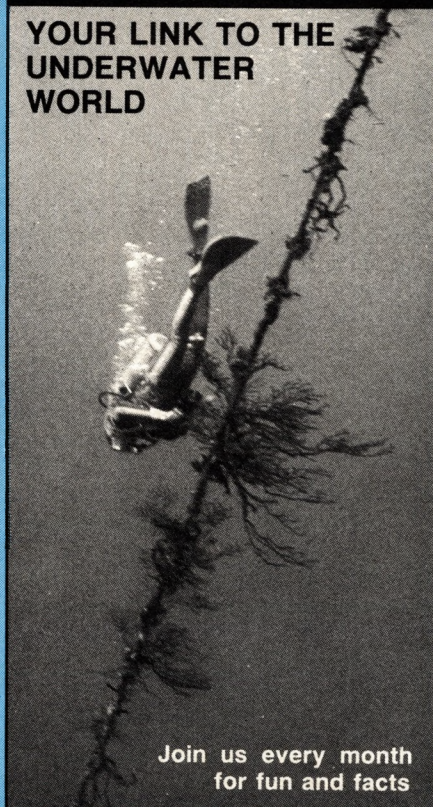
Other natural wrecks, like the **Tarpon, Simpson** and **Leroy** also yield diving treasures. Brass valves, vintage beer bottles, lanterns, cups and intact brass portholes are brought up by those alert enough to spot them and dedicated enough to work for them.

As we returned from diving several of these wrecks, a school of gulls met us at the inlet. They swirled and screeched overhead. Performing the ritual they have learned by following party boats back to port, they dipped to within inches of our fingertips. Crying for the bread crumbs we threw, they snatched them in mid-air while escorting us toward the crimson glow of a setting sun.

Off the bow, a full sized replica of a Spanish galleon marked our slip. I wondered: With all the silvery fish and natural marine treasure that cover the reefs and wrecks scattered along this Emerald Coast, could there be one of those on the bottom with its coins of gold and bars of silver covered over by the sponges? If so, divers will find it and you might as well be there when it happens. 

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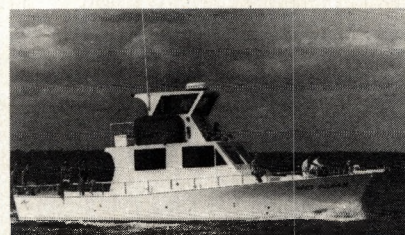
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Film Festivals 'n Symposiums

SEAS '85 CONFERENCE/PHOTO CONTEST

The fifth annual Southeastern Atlantic States Diving Conference will be held in Raleigh, North Carolina, February 22-24. Following a meet the speakers social Friday night will be two days of lectures, demonstrations and film presentations led by nationally recognized speakers. Other events during the weekend are an underwater photo contest and drawings for door prizes provided by many of the 40 or more exhibitors. An U/W Film Festival is planned for Saturday night to celebrate the Year of the Ocean and will feature Dr. Sylvia Earle and Stan Waterman.

The deadline for entries for the fifth annual SEAS underwater photo contest is January 23. Valuable prizes and plaques will be awarded to the top three 35 mm entries in each of the four categories of the competition: open, poster, wide angle and macro. Winning slides will be shown at SEAS '85.

Photo Contest information and conference registration materials may be obtained by writing SEAS '85, P.O. Box 31186, Raleigh, NC 27622 or by calling Doug Young at (919) 733-2290.

DIVE TO ADVENTURE

This is the ninth year Jack McKenney will present his Dive to Adventure programs. Two new films have been added



to McKenney's agenda this year, bringing the total to 23 films and slide shows to choose from. Each film festival usually consists of two hours of entertainment. The films range in length from 15 to 30 minutes and the slide presentations can be up to 20 minutes long.

McKenney's latest film, *Beneath the Sulu Sea*, is the 27 minute result of spending five weeks in the Philippines documenting the fabulous Tubataha reefs. Relatively unspoiled and little visited, these remote reefs are 110 miles from Puerto Princessa on the island of Palawan. The film includes a slow motion

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STRAIGHT TALK

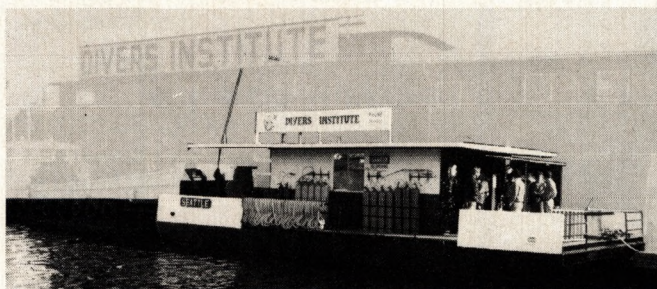
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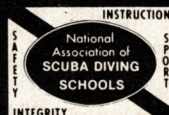
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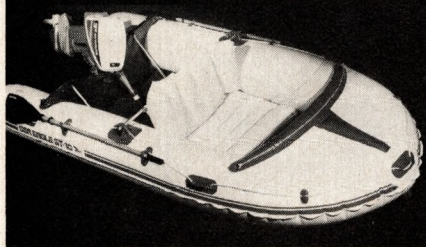
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FILM FESTIVALS

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Dive stores, clubs, councils and colleges have produced Dive to Adventure shows to promote diving, raise money for charity or simply to make a profit. It's a social event designed to attract the non-diver into the fold and to stimulate those divers who are perhaps seeking to expand their diving horizons.

To inquire about producing a Dive to Adventure show, costs and the mechanics of production, contact Jack McKenney, P.O. Box 6365, Glendale, CA 91205-0365; or call (213) 663-3486.

GREAT LAKES SHIPWRECK FESTIVAL

The Ford Seahorses will present their Eighth Annual Great Lakes Shipwreck Festival February 16. It will include multimedia shipwreck presentations, an expanded divers' forum and an artifacts display including exhibits from more than 20 museums and private collectors. For ticket information contact M. Gramer (313) 561-8393; 1841 North Denwood, Dearborn, MI 48128.

EKTACHROME 100

(Continued from Page 25)

essed with the standard Kodak processing steps, or with the new shortened Kodak Hobby-Pac system. Different Ektachromes—64, 100, 200 and 400—can be processed together in the same tank. And, on dive trips to distant resorts which

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MEMORY RECALL

LOBSTER FISHING LAWS

Scuba divers, sport and commercial fishermen on the U.S. East Coast have a new agency to answer to when they go out looking for lobster—the federal government. Under a new federal East Coast Management Program, all lobstering done from three to 200 miles offshore will be licensed and regulated by the National Marine Fisheries Service (NMFS) of the federal Department of Commerce. In the past, lobstering has been regulated by the individual states. Conflicting regulations and the lack of an overall lobster management program have led to confusion. In the past five years the lobster population has declined steadily. Worried marine scientists and regional fisheries officials have been lobbying for a federal lobster management program for more than a decade. Last year, the first of the new regulations took effect. The second and third phases of federal regulations will take effect January 1, 1985 and January 1, 1986.

The new law requires anyone taking lobsters to possess either a valid federal lobstering license or a license from a state with an approved lobster license program. Currently, only Connecticut,



Maine, New Hampshire and New York have federally approved licensing programs. The Massachusetts lobster licensing program is being reviewed by the NMFS for approval.

The Lobster: Its Life Cycle pulls together all aspects of lobster fishing—scientific, sport and commercial. The book summarizes more than a decade of lobster research. Intended as a resource for divers and fishermen who take lobsters, the book includes the latest research into where lobsters live, where to find them, the various life phases of the lobster and its behavior patterns. *The Lobster: Its Life Cycle* is published by PBC International Inc., and is available by sending \$9.95 plus \$2.00 for postage and handling to: Pisces Books; A Division of PBC International Inc., P.O. Box 678, Locust Valley, NY 11560.

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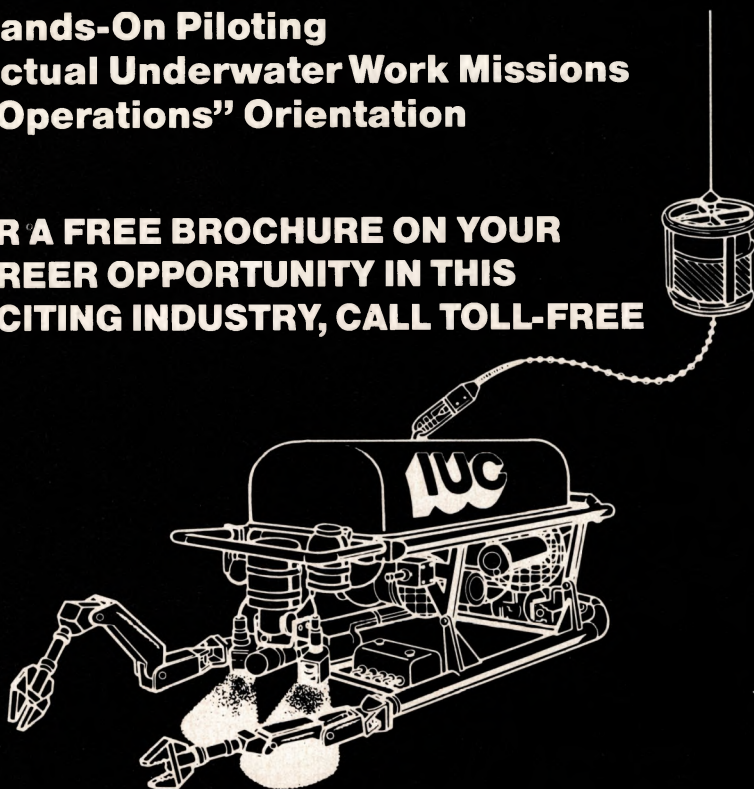
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U.S.S. COLUMBINE

Civil War Wreck Story With A Twist

TEXT AND PHOTOGRAPHY
BY HOWARD B. TOWER, JR.

Mention Florida to a diver and the first thing that pops into his mind is clear water, Spanish galleons and treasure. Few people realize the state's mirror smooth blackwater rivers, flowing past forests of moss draped live oaks, were the stage for numerous skirmishes during the Civil War.

As a Civil War buff and diver, I've spent many lunch hours researching state history at the Jacksonville, Florida Public Library. One day, while reading the exploits of Captain J.J. Dickson, North Florida's Confederate Swamp Fox, I found a narrative outlining the ambush of the USS *Columbine* on the St. Johns River.

Acting on intelligence information obtained from pickets stationed along the St. Johns, Captain Dickson and a company of cavalrymen set an ambush for the *Columbine* at Horse Landing. The vessel, a U.S. Navy gunboat, had been patrolling deep into Central Florida and was returning to Jacksonville. On board was a detachment of Federal troops. Dickson placed two 12 pounder Napoleon field pieces in dense woods along the river's east bank. His men secured

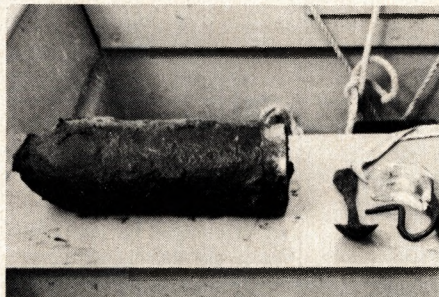


their horses and waited. Soon the *Columbine* appeared in the adjacent bend belching smoke, her sidewheels churning the water.

At a distance of 90 yards, Dickson ordered the Napoleons into action. Two 12 pound shots ripped through the machinery, disabling the vessel and causing pandemonium on board. The *Columbine* drifted onto a sandbar 200 yards from the bank. Naval officers directed a spirited resistance using the vessel's two 20 pound parrett rifles but their position was hopeless. The Confederates peppered the ship with grapeshot and the riflemen soon found their range. Union gun crews were mowed down by minnie balls and "iron hail." The decks were slick with blood. After 45 minutes, the *Columbine* struck her flag. Twenty crewmen lay dead and dozens more were wounded. One of Dickson's men suffered a concussion

from an exploding shell. Using rowboats from the landing, the Confederates boarded the vessel, evacuated prisoners and seized arms and ammunition. They also removed the parrett rifles before burning the ship. Dickison and his men marched into history. It was the first and only time a Cavalry unit destroyed a ship.

I took a navigational map of the St. Johns and located Horse Landing three miles north of present day Welaka, Florida. A shallow sandbar was clearly shown near the center of the river. Still, the vessel's location was a needle in a haystack. The *Columbine* was 100 feet long, with a 20 foot beam and drew six feet of water. The bar was hundreds of yards long and would require a lengthy search. How-



ever, my old dive club in Orlando owned a magnetometer.

A few days later I contacted friends in Tampa, Gainesville and Orlando who agreed to participate in the search. The Orlando divers brought the mag. On a sunny October day in 1971, nine of us, in three boats, launched at Welaka to begin an odyssey into history. At Horse Landing we fine tuned the mag and began to drag the probe over the east side of the bar—where, logically, the *Columbine* should have grounded.

Time passed slowly, and for awhile I thought we had struck out. Then the instrument's monotonous ticking became a brief whine. The needle bounced rhythmically. I dropped a buoy and we made a series of sweeps in the immediate area. The probe skimmed the bar. Topside the instrument recorded a series of small magnetic signatures. We anchored.

Moments later I eased over the side into the tea colored water. A second later I was on the sandbar in seven feet of water. Vestiges of the bright Florida sun reached the bottom creating a perpetual twilight. I turned on my light to enhance my vision.

The hard packed sand was littered with half buried objects covered with a thin layer of encrustation—bits and pieces of machinery, cranks and handles, large square iron nails and planks. I picked up a walnut sized object. The encrustation crumbled away. There in my hand was an iron grapeshot—all the proof I needed to surface in triumph and declare success.

Our first objective was a cursory exploration of the site. Everyone put on a tank and fanned out over the area. An hour later we pieced together a profile of the



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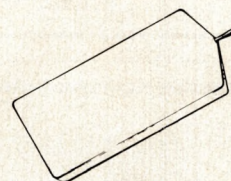
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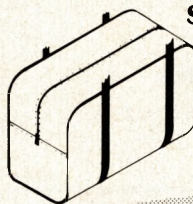
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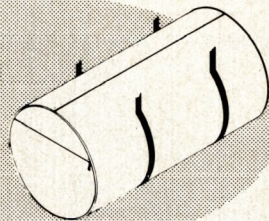
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Charles Garrett in Cartagena with Scuba World crew.

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U.S.S. COLUMBINE

area. The burned hulk of the *Columbine* was gone, probably removed by the Corps of Engineers during the 1880s. An area 35 feet by 100 feet was carpeted with remnants of the vessel and the associated historical drama. It was evident the sandbar had not shifted during the century and was hard packed, especially at the top where the water depth never exceeded four feet.

On the bows of our three boats lay displays of cultural material which substantiated the accounts of the skirmish. The Confederate minnie balls were flattened and deformed from impacting wood or metal. Large quantities of grapeshot were found scattered over the site. Planking pulled from the sand was charred from the fire and numerous pieces of melted brass and copper were found.

The day passed quickly. We accomplished our objective and realized this virgin site would take many, many dives to explore. It was my hope to work the sandbar methodically and keep some record of the objects recovered. We all agreed to work the site together and meet at Welaka the next Saturday.

An interesting sidelight of this monumental day were the dives conducted at Horse Landing. While my partner and I spent hours maging for the *Columbine*, our seven companions explored the hard sandy bottom at this old steamboat dock and retrieved beautiful antique bottles.

Saturday's subsequent dive was electrifying. Members of our group brought a small dredge, probes and a great deal of enthusiasm. Spirits were high as we anchored, then sent someone down to pinpoint the site. The St. Johns is 350 yards wide at this point and even good compass bearings from both shorelines were no guarantee of a precise location.

We spent five hours digging, probing and jetting shallow trenches across this historic patch of sand. The St. Johns is slightly brackish and iron objects chemically bond themselves to the sand, which inhibits their tendency to sink. The first 12 inches of the bar were packed with cultural material. Dozens of brass uniform buttons and other Union Naval and Army accouterments were located. Personal effects included spectacles, scissors, pocket knives and leather boots.

While exploring the site, I spotted two small knobs protruding from the sand. After carefully fanning away the sand, I found the knobs were the ends of two large nails which were attached to an elevation and control mechanism once part of a gun mount. This magnificent gunnery artifact, constructed of thick brass and oak, measured 12 by 40 inches.

Another diver retrieved a heavy iron bar with a massive brass padlock attached at one end. Portions of brass lan-

(Continued on Page 109)

SEATEC STINGRAY

*Soft Backpack Makes This
BC A Packable Prizewinner*

**TEXT AND PHOTOGRAPHY
BY BONNIE J. CARDONE**

Ever wish for a BC jacket that slips on and off your tank easily, is non bulky for easy packing, yet provides plenty of buoyancy and is comfortable both underwater and on the surface? If so, check out the new Seatec Stingray.

The first thing I noticed was the compactness of this new, wraparound BC. And yet, it seems to have all the features of larger versions. There's a dump valve on the right shoulder; hose guides to keep both an octopus and pressure gauge/console within easy reach; two Velcro® closing pockets, one with a D-ring for keys; a power/oral inflator; and two D-rings to hold such things as a light, lobster gauge, etc.

What's really special about the Stingray, however, is its soft backpack. An integrated part of the unit, this lies flat against the back of the BC when not in use. Thus, it is easy to pack and takes up little space. It's extremely simple to assemble. Two heavy duty, Velcro closing bands fold around the end of two stainless steel buckles. You adjust these bands to fit your tank once; they do not need to be readjusted unless you switch to a different size tank. Open the buckles and slide the pack onto the tank. Then close the buckles. These latter are the easiest closing backpack buckles I have ever used. Material goes three-quarters of the way around the tank and helps prevent slippage. A sturdy nylon webbing strap serves as a handle and you can test the snugness of the backpack by lifting up on this to check for slippage.

The Stingray's flotation is on both sides of the chest and under the arms, as well as on either side of the tank. For freedom of movement, the underarm sections are connected only by the three inch wide, Velcro closing waistband.

I found putting the backpack on the tank a breeze. Diving with the Stingray was equally easy. If there was any drag it was unnoticeable. On the surface I used the power inflator to fill the unit. It kept me upright with my head and

shoulders out of the water. Surface swimming with the unit inflated was also easy.

Care of the unit is simple. Rinse inside and out with fresh water after the diving day is over and dry out of direct sunlight. The tank bands shrink as they dry so release the buckles and/or remove the unit from the tank between dives. Check the CO₂ cartridge occasionally, removing it and lubricating the threads with silicone grease or petroleum jelly.

For more information on the Stingray contact Seatec, 600 Batavia, P.O. Box 1109, Orange, California 92666.



The Seatec Stingray BC jacket has a soft backpack that is secured to the scuba tank with two stainless steel buckles.

STINGRAY SPECIFICATIONS

Outer bag.....	420 denier nylon
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CO ₂ cartridge.....	.25 gram
Sizes.....	S,M,L,XL
Colors.....	red/royal; red/navy; royal/navy; yellow/ black; black (heavy- duty Cordura)
Strap system.....	2 chest w/Delrin quick release buckles; 1 Velcro closing waistband
Price.....	\$395

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**U.S. DIVERS
CONSHELF SE**



TEXT AND PHOTOGRAPHY BY GEORGE COZENS

Introduced just last November, the Conshelf SE (Special Edition) is the most recent addition to the very long and extremely popular line of Conshelf regulators from U.S. Divers. The original design of the Conshelf series dates back to the late 1950s, but the name, Conshelf, was not coined until the mid 1960s. Over the last two decades many improvements have been made in the series, with new versions assigned increasingly higher model numbers. In a departure from this numbering trend, the new SE follows the Conshelf 30 (SDM, July 1984). Although the naming pattern has been broken with the Conshelf SE designation, the tradition of Conshelf reliability and performance should be well served in this new model.

The first stage of the SE is quite similar to that of the Conshelf XIV and 20. It is based on a conventional, balanced diaphragm design which has some nice benefits. It is relatively compact in size. The diaphragm's main function is to adjust the intermediate pressure air to changes in depth. It also seals out the terrible Ss (salt, sand and silt), preventing these from reaching the critical moving

parts of the regulator. This means there is less wear and friction. And, since the SE is balanced, it provides more constant intermediate air pressure to the second stage as scuba tank pressure decreases so the second stage can be fine tuned for better performance.

Weighing a hefty pound and a half, the SE first stage consists of a body machined from solid brass and a swivel yoke, rated at 3,000 psi, of forged brass. Both are chrome plated and polished to a mirror finish. Other materials used include: a composite nylon reinforced diaphragm; a chrome plated brass yoke screw with a large, plastic, easily gripped knob; and a solid plastic, O-ring sealed dust cap. One high pressure port, marked HP and three low pressure ports are evenly spaced around the girth of the stage body. This placement allows for improved positioning of the pressure gauge, second stage, octopus and BC inflator hoses.

Changes made in the new SE first stage involved increasing the volume of the intermediate pressure chamber, opening up the internal air passages and

enlarging the low pressure ports to accept the newer 1/2 inch hose fittings. These latter first appeared on the U.S. Divers Royal Aqua-Lung® about two years ago. In keeping with these large fittings, the 26 inch long low pressure hose has a greater internal diameter, giving it about twice the internal volume of typical low pressure hoses. The effect of all these expanded dimensions is to increase the air flow at a constant intermediate pressure of 135 psi. Additionally the larger volumes of intermediate pressure air in the first stage and hose provide a greater reservoir of air immediately available to the second stage and hence the diver—resulting in a lower initial inhalation effort.

Although environmental protection is not offered in the standard Conshelf SE this can be obtained by installing the environmental protection kit, (about \$50) or by buying the Conshelf SES regulator (Special Edition, Supreme).

In designing the second stage the engineers at U.S. Divers decided on a tested and proven, conventional, venturi-assisted, downstream valve design. Norel®, a

hybrid ABS plastic, was chosen for the second stage case and Rovel®, another ABS plastic, was selected for the front cover. These plastics, the engineers believe, provide the optimum combination in desirable properties: dimensional stability, resistance to ultraviolet rays (UV), strength and durability. Also, by using plastic as a housing material the interior of the second stage could be, and indeed, was molded for an efficient aerodynamic flow. Complementing the sculptured interior of the stage is a curving venturi baffle that directs the air flow from the large port in the demand valve toward the mouthpiece tube for reduced inhalation effort. To help control the venturi effect, two smaller, precisely positioned ports in the end of the demand valve guide some air into the stage cavity and against the backside of the diaphragm. The downstream demand valve functions in the usual way, being actuated by a stainless steel, nylon tipped (for reduced friction) demand lever. This nylon tip contacts a stainless steel disk attached to the back surface of the silicone rubber diaphragm. Critical parts of the demand valve are chrome plated brass, while the low pressure seat is silicone rubber. The mouthpiece and one inch diameter exhaust valve are also silicone. The exhaust tee is made of PVC compound, selected for its resistance to UV and for its long-term ability to stay soft and flexible. It snugles comfortably against the chin when in use, has a swept-back shape to channel exhaust bubbles to either side of the field of view and incorporates a con-

cally shaped air dam inside to deflect exhaust bubbles out more efficiently in an effort to reduce exhalation resistance.

A capped port in the side of the SE second stage allows adjustment of the demand valve without having to disassemble the stage housing or remove the supply hose—however easy, this adjustment should only be performed by a trained technician. The screw-in front cover, offered in your choice of black, blue or yellow, holds captive the plastic, spring-loaded purge button. The length of travel of the purge button is limited; it can only be depressed so far. A small screw, however, mounted to the rear of the purge, can be adjusted to vary the displacement of the diaphragm and, therefore, the amount of air flow when purging. This feature performed well during the evaluation dive, but this will be described later. All of these features are packed into an attractive, rugged and light weight second stage that tips the scales at a mere eight ounces.

Plastics really have come of age. The Norel case offers some degree of thermal protection in cold water diving and its resistance to corrosion, as well as the corrosion resistance of the other regulator materials, should minimize routine maintenance. Rinsing in fresh water after dives is, as always, recommended. And, to keep the Conshelf SE performing in top condition, annual professional service is advised. Because of the conventional design and type of materials used, the cost of servicing should be quite reasonable. However, if a full overhaul is

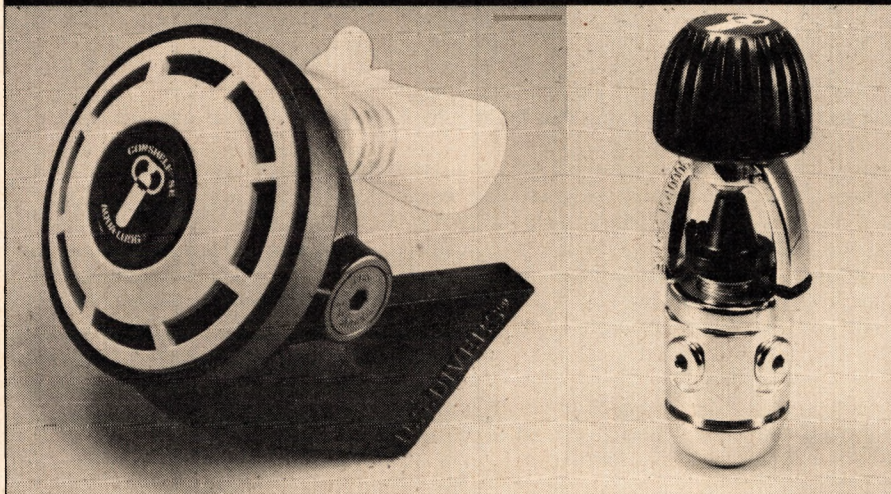
needed, replacement parts might run in the range from \$15 to \$25, with labor charges totaling about the same.

My evaluation of the Conshelf SE was done during a couple of dives made from a private boat off Long Point, Santa Catalina Island. The conditions were near perfect: a bright, warm sun; slight breeze; a fairly smooth water surface; very little current; and clear, warm water. The first dive included a short excursion to about 100 feet. Here, using the Conshelf SE, I varied the inspirations and expirations from slight to exaggerated and compared the results with those of my standard regulator, connected to the same tank. The SE fared well. Even with gross inhalations, I could not out-breathe this Conshelf. More comparisons were made at other depths during a gradual ascent and later—all with about the same consistent results. In the various orientations tried, I observed no idiosyncrasies or strange behavior. Sometimes, when doing my imitation of a wrestlers' bridge, with eyes looking along the bottom and my head rolling from side to side, an upside-down regulator will leak: but not the SE. It remained dry throughout all of the positions tested. Exhalation resistances seemed very low under all conditions, orientations and levels of expiration.

Freeflow characteristics confused me at first. A conventional second stage with such good performance should have freeflowed more than the SE did. Generally, in one of the worst case situations (mouthpiece vertical and purge depressed) a second stage will freeflow excessively—but not the SE. It spit air for only a second or two. Not until later did it occur to me that this was probably owing to the limited travel of the purge button, which restricts the air flow and the resulting venturi effect and the internal venturi baffle, which directs air out through one side of the mouthpiece tube and allows water to enter the stage via the other side. Whatever the reasons, with all of my attempts, freeflowing would only sustain itself under one condition: when withdrawing the stage during a hard inhalation and immediately turning the mouthpiece upward. The venturi effect of the large flow could be seen here, but by turning the stage over, the freeflowing would soon stop. Great!

Considering the design, materials, craftsmanship, performance, retail price of \$220 and lifetime limited warranty, the U.S. Divers Conshelf SE appears to be one fine regulator and is well qualified to carry on the Conshelf tradition of performance and reliability. 

The first stage of the Conshelf SE (below right) has one high pressure port and three low pressure ports. The second stage (below left) has a Norel case and Rovel front cover. A screw varies the amount of air flow when purging.



RX

FOR DIVERS

BY FRED BOVE, M.D., PH.D.

This month, our column is presented by Al Pierce, a NAUI, YMCA and PADI instructor who has devoted much of his time to developing techniques for water rescue and survival. He was recently named Diver of the Year of the Underwater Society of America, Northeast Region.

We have had inquiries about using BCs for breathing in out of air emergencies. Pierce addresses this issue.

BUOYANCY COMPENSATOR REBREATHING

In an out of air emergency, is it safe to rebreathe air exhaled into a buoyancy compensator? There are a number of considerations involved:

Will rebreathing allow you more time for ascent? Obviously, you can rebreathe your exhaled breath at least once. In mouth-to-mouth resuscitation, there is plenty of oxygen available. Continued rebreathing will naturally reduce the percentage of oxygen, but you are using it instead of exhaling it into the surrounding water. As the carbon dioxide builds up, your hunger for fresh air will increase, but your break point will be surprisingly long in coming. Experiments have shown that when a breath-hold break point is reached, exhaling into a bag and re-inhaling the same air will extend it. This is because when you inflate and deflate your lungs, you stimulate stretch receptors in your chest, thereby reducing air hunger. Another reason is that air in the dead spaces of the airways is moved back into the alveoli where oxygen can be absorbed. The increasing carbon dioxide concentration will eventually cause you to breathe faster. This ensures that breath-holding will be avoided.

Remember also that the air expands as you rise. If you start at 100 feet, you will have four times your original volume to breathe on the way up.

Is there any danger of breathing from

a fully inflated BC? As long as the BC flexes, it is not only safe to breathe from, but it is also an exceptionally easy breather. The entire surface serves as a large diaphragm, furnishing air at the pressure of the surrounding water.

However, if the BC is allowed to become turgid from over-inflation so it no longer flexes, the air pressure inside can exceed that of the water. Breathing from it then could possibly cause a lung over-pressure accident. Such an event is unlikely, however, during rebreathing. It takes more than five full breaths to fully inflate most BCs. Even at 130 feet (the safe limit for sport diving), the BC will expand about five times on the way up, so you will have plenty of air to breathe, but won't overinflate the BC. To be certain, instead of exhaling into the BC, you can exhale through your nose occasionally as you rise.

What is the danger of breathing pure carbon dioxide? This is potentially dangerous, but can be avoided by habitually purging the CO₂ from the BC following each cartridge inflation. You can flush it out by filling it with air from your tank or your lungs a few times.

If you forget to purge the CO₂ and try to breathe it, you will be dramatically warned of its presence. It is stinging pungent. (Although rated as odorless, in such high percentages, the CO₂ combines quickly with the moisture in your mouth to form carbonic acid.)

Is there a danger of lung infection? Stale water in an unclean BC can result in concentrations of bacteria or fungus that may cause a lung infection if inhaled.

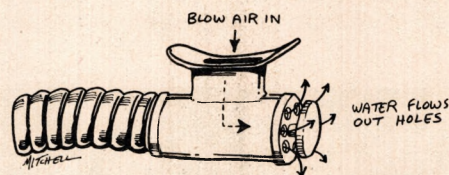


is essential to avoid inhaling water. Most BC mouthpieces have holes in the end. That allows the water to be blown out with the first puff. If there are no holes, the mouthpiece can be purged by rolling so the water flows into the bottom of the BC.

If stray droplets owing to imperfect purging happen to cause a coughing spell, don't remove the mouthpiece. Cough into the BC. The expelled air will be there, ready to inhale when the coughing spell is over.

Master purging in shallow water before trying BC breathing at depth.

Will rebreathing, increasing percentages of CO₂ and decreasing percentages of O₂, cause physiological problems? A study of buoyancy compensator rebreathing was conducted at Temple Uni-



illustrations/Jim Mitchell

You can use your BC to share air. This BC mouthpiece (above right) is easy to clear.

In a life-saving emergency you won't be concerned about an infection that may develop days later. Practicing rebreathing with an unclean BC, however, is not wise. Frequent rinsing with well-chlorinated swimming pool water may be sufficient, but to be sure, use benzalkonium chloride, the antiseptic used to sterilize similar hospital materials. The concentrated form is sold in drug stores under the brand names Roccal and Zephiran Chloride. Follow the directions for dilution and application. Rinse with fresh water before using the BC.

Can you avoid inhaling the water in the mouthpiece? Purging the BC mouthpiece

versity by Dr. Robert Leahy, director of underwater education and research and Dr. Peter Lynch, a physiologist conducting diving physiology research. Twenty-five subjects, men and women, fat and thin, smokers and non-smokers, were tested rebreathing from a BC for one minute. Oxygen and carbon dioxide levels were monitored using a gas analyzer. There was no compromise of the physiology of any of these subjects.

In addition, 22 basic scuba students, after having used a regulator underwater only twice, rebreathed from their BCs for one minute in a pool ten feet deep. None had any problems.

In the fall of 1981 I tested a brand new strobe called the Helix Aquaflash 22. It was a great little medium-size submersible strobe that offered the compactness and lightness of a mini, plus the power of a larger strobe. It had a number of unique features such as twin flash tubes, automatic flash sensor and remote slave firing mode. At the time I thought the strobe was great; I still do today. Over the past three years, I have been using the unit for various photography assignments: It has produced flash after flash faithfully.

Now Helix has introduced an innovative unit called the Aquaflash 28. Designed along the same lines as the Aquaflash 22, this new model is more powerful and more versatile than its predecessor. Designed and produced to the specifications of Helix president Paul Schutt, the Aquaflash was manufactured by Toshiba, one of Japan's foremost builders of electronic flash units.

The Aquaflash 28 derives its name from its guide number. With ASA 64 film it has a powerful underwater guide number of 28. Its predecessor's underwater guide number was 22.

What does this mean in terms of f stops? If you are using a Nikonos Close-Up Kit with ASA 100 film you can achieve the maximum stop down aperture of f22 with the strobe set at 1/4 power. With the old model you had to settle for f16.

The output of the Aquaflash 28 is approximately two-thirds to one full f stop brighter than the older model. The Aquaflash 28 has an underwater guide number equal to or greater than most of the larger strobes on the market today. This is pretty amazing considering it is powered by six AA batteries. The batteries are inserted through a circular door in the rear of the flash head. Helix recommends you use alkaline batteries rather than rechargeable ni-cads. The alkalines seem to have greater capacity.

One of the most often asked questions in underwater photography is how many flashes can you get on a set of fresh batteries? The Aquaflash 28 scores high in this area. On manual full power, the Aquaflash 28 will deliver enough flashes for two to three rolls of film, depending on how well you conserve battery energy between dives. The strobe should be turned off when not in use. On automatic mode the strobe will produce sufficient flashes for three to four rolls of film. When used on manual 1/4 power the strobe will really turn out the flashes, lasting for 6-10 rolls. It is a marvelous unit for macro photography because of its rapid one second recycle time.

Aside from the increased flash power, the major improvement in the Aquaflash 28 is the addition of detachable flash cords throughout the system. With the older model, there was a permanent fixed wire coil cord between the strobe head and the automatic sensor. Only the cord

between the down side of the sensor and the camera could be removed. This meant you had to use the automatic sensor whether you wanted to or not.

With the new Aquaflash 28, both coil cords are detachable and the automatic flash sensor can be completely removed should you choose to operate manually. This is important to macro photographers who don't need auto flash mode and want to reduce the bulk of camera equipment to a minimum. Both ends of each coil cord are fitted with Nikonos III, IV or V flash connectors and are reversible.

Another important side benefit of the disconnecting flash cords is that you can do a much better job of packing the strobe for travel. Many flash cords are broken or damaged in transit because they get kinked or crimped against another piece of gear. With the Aquaflash 28, you can remove both cords and safe-

ly stow them away.

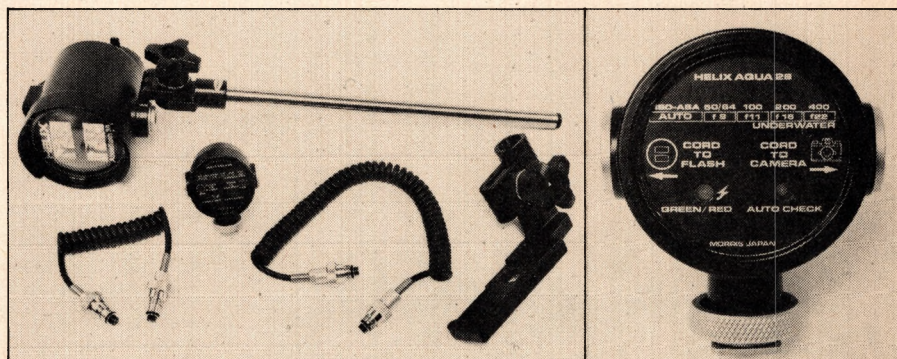
The Aquaflash 28 will fit all Nikonos models ranging from the Nikonos I to the latest Nikonos V. The unit is equipped with advanced dedicated strobe circuitry and can be used in the automatic flash mode for both the Nikonos IV and the Nikonos V. The automatic flash sensor can be mounted in three different places; on top of the strobe head, on top of the camera or beneath the camera bracket. The sensor is equipped with a shoe mount and locking nut.

SDM's test with the Aquaflash 28 revealed a high degree of reliability. In fact, Helix Aquaflashes are popular rental units at many of the underwater photo centers throughout the Caribbean.

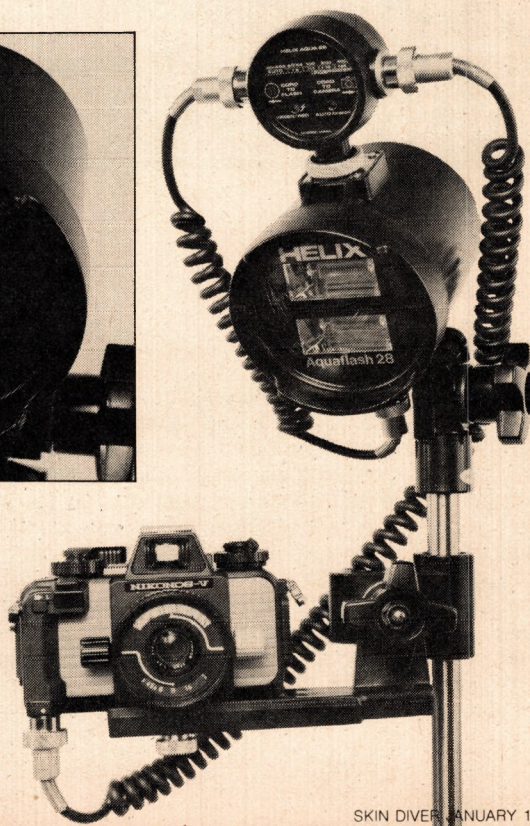
List price for the new Aquaflash is \$449.50. For more information write Helix, 325 West Huron Street, Chicago, Illinois 60610.

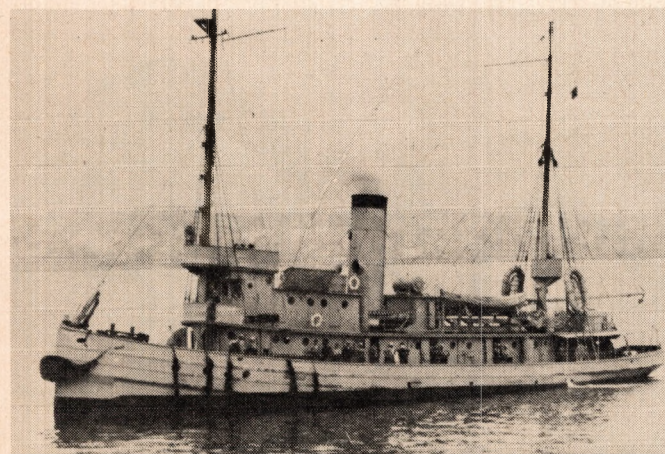
Helix Aquaflash 28

TEXT AND PHOTOGRAPHY BY GERI MURPHY



The Helix Aquaflash 28 has twin reflectors and detachable synch cords. The remote flash sensor will work in the automatic mode with Nikonos IV and V underwater cameras.





Top: California Wreck Diver Jesse Roggen explores the wreckage of the *Koka*. Above: The U.S.S. *Koka* before she was stranded on the rocks of San Clemente Island.

If you're expecting dramatic, photogenic structures, a dive on the USS *Koka* will be disappointing. Wrecked 47 years ago in shallow water and pounded by waves and surge ever since, what is left of her is covered with seaweed and blends in with the seascape. Once you become accustomed to the scene, however, you begin to notice shapes not usually found in nature. Start turning over rocks and you may find brass.

Built in 1919 at the Puget Sound Navy Yard, the *Koka* was a 157 foot long steel hulled vessel with a 30 foot beam. She displaced 1,000 tons and carried 46 crew members. For 18 years she was stationed in San Diego and sailed throughout California waters towing targets and performing the other duties expected of a Navy tugboat. Her military career ended

San Clemente Island's U.S.S. KOKA

Shallow Wreck Yields Its Shining Treasure

BY BONNIE J. CARDONE AND STEVE GILES



on a foggy December morning in 1937 when she ran aground on east point of Northwest Harbor, San Clemente Island. She was decommissioned that same day and as much equipment removed from her as possible. Then she was declared unsalvageable and left half submerged on the rocky point.

In 1962 divers discovered the wreckage but the vessel's identity was unknown. Pete Greenwood salvaged its huge propeller, blade by blade. (Each of these is eight feet tall.) The name of the company that built the prop was engraved on it as well as its weight (1,915 pounds), year manufactured (1885) and serial number. Greenwood wrote to the American Ship Building Company in Ohio asking the identity of the ship whose prop he now had. The company told him it had been used on a vessel known as the *Tioga* that sailed between Buffalo and Chicago. Doing further research on the *Tioga*, California Wreck Diver Pat Smith discovered it had been lost in Lake Superior in 1919. The *Koka*'s identity was finally proven beyond doubt when Steve Giles, also a California Wreck Diver, found a brass bearing block with the tugboat's name on it. Smith found the brass Station Watch Bill which also had USS *Koka* and the names of the various crew members and their stations engraved on it. The *Tioga*'s prop had been salvaged and sold to the Puget Sound Navy Yard where it ended up on the *Koka*.

Since it is in the protected lee of Northwest Harbor, the *Koka* is usually divable. She is in shallow water (at the deepest, about 15 feet) and there is always surge. The wreckage is hard to distinguish from the rocky, seaweed covered terrain. Brass artifacts are still found. Last year another of the ship's 21 inch portholes was recovered. Most of the items found now, however, are small (keys, coins, valve wheels) and full of dents and scratches from their long battle with nature. Greenwood recently found a Navy medal with the name Paul Louis Morin on the back. He would love to return the medal to its rightful owner or his heirs.

A misfortune for the Navy, the USS *Koka* provides good fortune for divers. 

Flop, flop, flop—that's the sound a diver with overly buoyant legs makes while struggling to make progress at the surface. Smaller divers wearing thick wetsuits, divers with naturally buoyant legs and divers in drysuits with attached boots often find they have to concentrate on keeping their fins in the water while surface swimming. Additionally, underwater, these divers find they have to concentrate on maintaining a horizontal orientation—their feet keep rising.

At the surface or underwater, floating feet can be an annoying energy waste. Adding extra weight to your weightbelt will make you less buoyant overall: You will be lower in the water at the surface but underwater your feet will still rise. This can also cause back strain.

The logical solution is to balance your buoyancy by transferring some of the weight from your weightbelt to your feet.

straps with Velcro® adjustments. Thus, the one size will fit any ankle. Since the lead shot is encased in a neoprene tube the weights are flexible and comfortable.

The neoprene tube is composed of two strips, each 11 x 3.5 inches. The strips are sewn together with heavy-duty nylon thread and the edges have a protective covering of stretchy Lycra-spandex tape sewn on. The outside strip is nylon two for durability. The inside strip is neoprene backed by nylon. The open pore neoprene forms a non-skid surface against the diver's suit material, helping to keep the weights in place.

There are two pockets in each Ankle Weight. Thus, even if filled loosely, the shot won't shift around. The shot is added to each pocket through Velcro closing apertures at each end. This is a wide expanse of Velcro, 1½ by 2½ inches. DUI has incorporated a unique Shot-Lock®

weights but is available at gun/reloading stores in a variety of sizes. Some dive stores carry it as well. Number eight bird shot is about \$15 for a 25 pound bag. Larger shot is easier to handle but won't pack as tightly or be as comfortable.

Ankle Weights are sturdy and, cared for properly, should last as long as your

DUI ANKLE WEIGHTS

Material	1/8 inch neoprene, nylon two and nylon/open pore
Stitching.....	Heavy-duty nylon
Size	11 x 3½ inches, fully adjustable
Buckles	Quick release Delrin
Weighting method.....	0-5 lbs. lead shot each
Closure.....	Velcro (Shot-Lock)
Price	\$27.60 per pair

DUI ANKLE WEIGHTS

Supertune Your Buoyancy For Better Diving

BY JIM WALKER

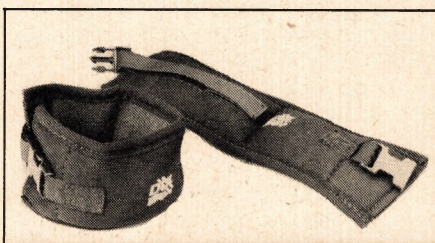


Your overall buoyancy won't change but your feet will be negative.

Diving Unlimited International (DUI) of San Diego, California offers you an easy way to balance your buoyancy. Ankle Weights are short tubes of 1/8 inch neoprene which wrap around the ankles and can be filled with lead shot. Each Ankle Weight can accommodate up to five pounds of shot. I was able to fill one with five pounds, 1.5 ounces of number eight bird shot, but this was really stuffing it. And, the weights are less flexible and more bulky when stuffed to the max.

While a large diver wearing a drysuit might use the full five pounds on each ankle, other divers will use much less. DUI gives the average as 2.5-3 pounds per ankle and I found this about right for buoyancy and comfort.

Ankle Weights are secured by Quick-lock Fastex buckles made of nylon—just push in to fasten and squeeze to unfasten. The buckles are attached to nylon



Ankle Weights are neoprene tubes that the diver fills with lead shot and wears on the ankles to prevent floating feet.

mechanism into the closure. The fuzzy side of the Velcro is sewn down at both ends but the hook side is only sewn at the outer end. The shot in the pocket slips up behind the hook side, dead-ending at the seam and forcing the hook side against the fuzzy side. The closure will not open or leak any shot, even if dropped.

Lead shot is not provided with the

wetsuit. Rinse them with fresh water inside and out after use in the ocean and hang from the center to dry (so water passes out the ends of the pockets). If left sitting, wet and salty for some time, the shot could corrode and clump together.

If you have trouble with air shifting into the attached boots of your drysuit, Ankle Weights can restrict the shifting air flow as well as keep your feet from floating. Additionally, in a wet or drysuit, when on the surface, your feet will be negative so you won't have to fight to stay vertical. I found this particularly nice.

Ankle Weights are available in black only and retail for \$27.60 per pair at dive stores. They come with a one year limited warranty. DUI recommends the weights be used in conjunction with the Adjustable Shot Weightbelt for fine tuning your weighting and balance. For more information contact Diving Unlimited International, 1148 Delevan Drive, San Diego, California 92102. 

AMOS NACHOUM

This world traveler/lecturer/tour organizer/
photographer is a non-stop fireball.

BY STEVE LUCAS



World traveler, lecturer, tour organizer, photographer and expatriated Israeli, Amos Nachoum is a non-stop fireball. He circles the globe several times each year from his base of operation in New York City in search of world class diving. His underwater photos have been featured in photography and news magazines and he has appeared as a guest on television shows such as the Today Show, Good Morning New York, AM Los Angeles and the Merv Griffin Show.

From the United Nations Plaza, Nachoum and his partner, Warren Abrams, operate one of the most successful exotic travel companies in our industry. La Mer Diving Seafari, Inc. specializes in dive travel to the Galapagos Islands, Australia, Maldives, Philippines, Caribbean, Sea of Cortez, Red Sea and other locations as well as special big game photo expeditions to dive with the great white shark, whale shark and manta.

SDM: What gave you the initiative to start an exotic dive tour company?

Nachoum: When I arrived in the United States and began working in New York I realized most people got only a beginning certification and were exposed only to local diving. There was little opportunity for them to advance their skills. I began to develop programs to take them to other places in the United States. When I decided to return home to Israel for a visit, several people who had been diving with me asked if they could accompany me on a Red Sea dive trip. I took them on a coastal safari by jeep and on the backs of camels. The next trip (March 1979) was with a group of six people. During that trip Warren and I decided to develop a company that would be a different type of operation for Americans—more comfortable, more luxurious, safer and able to reach parts of the Red Sea not accessible from shore. Thus, we developed our first live-aboard.

SDM: How did you decide on the name La Mer?

Nachoum: That is an interesting story. Before the second trip I went to register the company. They asked me the name. I hadn't thought of one! The only thing that came to me was a piece of classic music called La Mer that starts with the sound of waves and sea gulls.

SDM: What is different about La Mer?

Nachoum: On our planet Earth, actually planet ocean, we wanted to change the concept of dive travel. We want to cater to American tourists and offer only first class diving destinations and facilities. We understand the local conditions and work with local authorities to learn about our destinations. We limit the size of each group. We want to make each customer's dreams come true. We design all of our trips. We seek out the best boats, hotels, restaurants and competent guides: people like Dr. Eugenie Clark, Sylvia Earle, Dee Scarr, Steve Lucas, David Doubilet and others in that category. We are interested in increasing the customer's comfort, awareness and understanding of the destination. A dive trip is not only to get wet. It is to gain more knowledge and more in-depth understanding of the delicate marine balance we are swimming in. We try to let our people enjoy and learn pursuits like underwater photography and conservation. We support each trip with reading materials explaining all the necessary gear, documents and what to expect during the trip. The only surprises we leave for our customers are those found in the ocean.

SDM: Is there a particular La Mer trip, such as the great white shark photo safari, you consider to be the most exotic?

Nachoum: That is a difficult question. Which city in the world is the most beautiful? Rome? Copenhagen? Paris? New York? Each one has its own beauty. The same thing is true about the oceans. Each place has its own special and unique features. We cannot change what is underwater, but we can improve on services and logistics. We send people

only during the prime season of diving. We use only those restaurants we have tried ourselves. We strive to make each trip maintain the same high standard as every other trip. That makes it very difficult to say that one trip is any more exotic than another.

SDM: Do you have anything new happening at La Mer this year?

Nachoum: We are starting a new program called Learn La Mer where we send people with a diving instructor to the Caribbean and teach them to dive. Groups are, again, kept small.

SDM: You are becoming well known as a lecturer. What is your main topic?

Nachoum: During the times I have traveled the vast oceans, I have encountered many situations with marine animals that I did not think were dangerous. The animals were performing their normal behaviors and we came there as ET's. In America there is a major apprehension of animals such as sea snakes, scorpionfish, lionfish and sharks. I felt intimidated by this feeling. I asked myself, why? What is the reason for all this fear and concern that is not justified? One of the reasons is Hollywood, but most of us fear anything we do not understand. We learn to fear and destroy. I took it upon myself to create a presentation called Dispelling the Myth of Dangerous Marine Animals. The lecture is made up of personal encounters with the great white shark, other sharks, sea snakes, manta rays, eels, sea lions, lionfish, scorpionfish and others. The program shows how humans can work with them almost hand to hand without fear. What it takes is knowledge and understanding of the animal. It takes respect. We must understand that we are the invaders. We are actually guests in their water. We must be less aggressive and must learn to make love to the ocean. We must not try to control it. There are really no dangerous animals in the ocean. Only those of us who try to contain or change it. 

UNITED
STATES

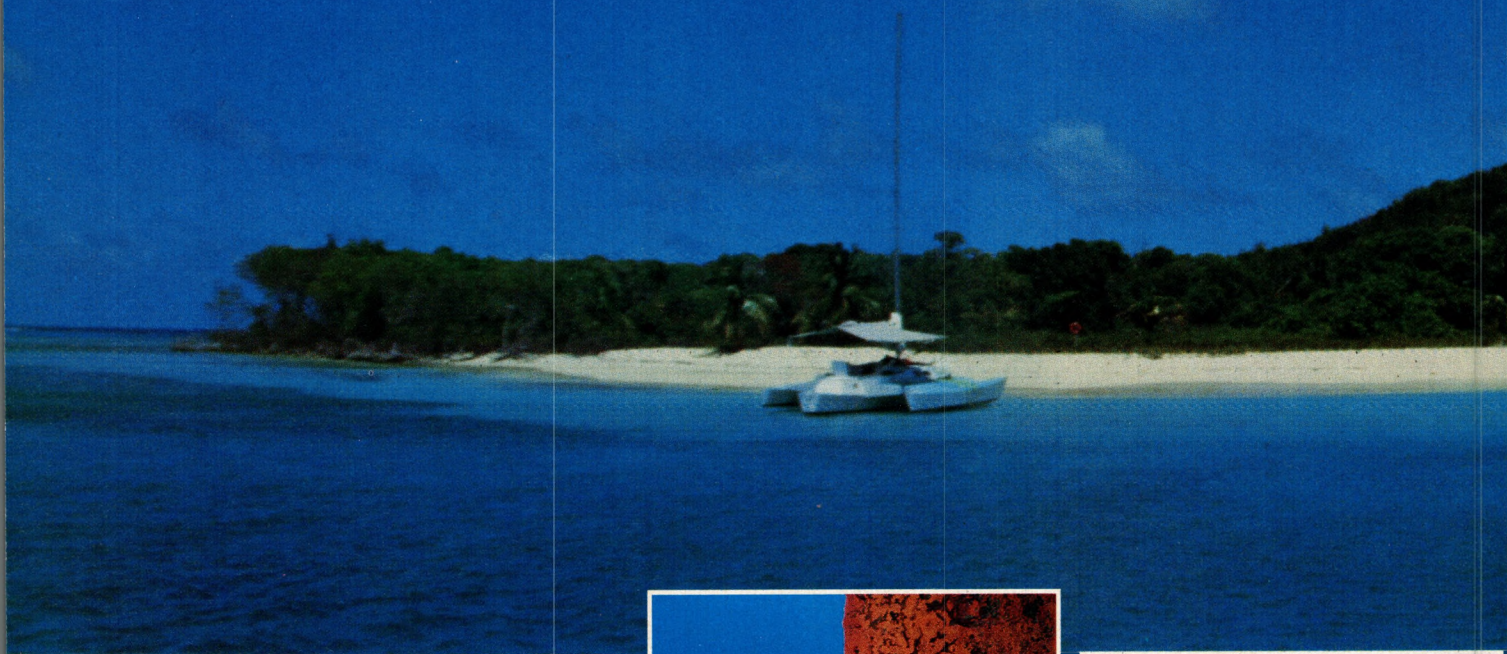
VIRGIN

SDM SPECIAL SECTION ISLANDS



UNITED STATES VIRGIN ISLANDS

A Charming Blend Of American And Caribbean Cultures



During our four summers in the Virgin Islands, we have developed a strong love of their natural beauty. Wherever you hike or drive, beautiful mountains and vistas spread out before you. Wherever you sail, secluded hideaways await. Wherever you dive, there are exciting wrecks, walls or reefs. And, scattered among all of this beauty you will find excellent accommodations and services.

Dining is an exquisite experience. The major hotels have excellent restaurants and independent restaurants feature French, Italian, Chinese and other international cuisine. But don't overlook the Virgin Island specialties such as fresh fish

and delicate, savory, local lobster.

The duty-free shopping is fantastic! Not only are prices lower than at many other locations, but you can take \$800 in duty free merchandise home, per person—twice the normal limit. If you'd rather not carry bulky items home on the plane, many merchants will mail your purchases to your home address.

Each of the main islands—St. Thomas, St. John and St. Croix—have qualified, certified dive operations and we personally visited each one mentioned in this article. Each operator has a fixed land base you can visit. They all offer certified instruction and guided shore or boat diving.

Because their exact services can vary with the season, however, always write for the latest information.

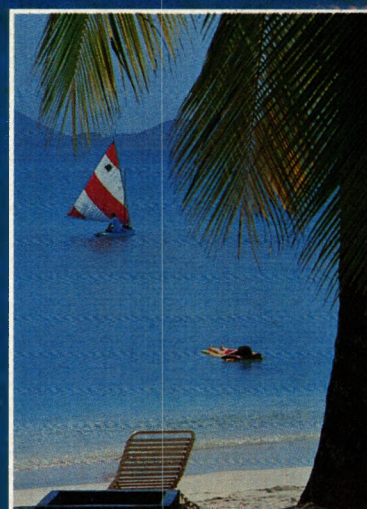
USVI diving is varied and exciting: You can dive shallow reefs, shipwrecks, deep reefs or plunging walls. Many sites feature tame fish or colorful sponges and corals. Visibility ranges from about 50 to 150 feet and the water temperature averages about 76°F in winter and 84°F in summer. Although summer is the down season for tourism, diving is available throughout the year.

Flying to the USVI is easy. American Airlines flies from New York to St. Thomas and continues to St. Croix. Eastern

TEXT AND PHOTOGRAPHY BY JIM AND CATHY CHURCH



A wide range of exciting activities are available in the USVI from totally dry U/W viewing at Coral World (far left), to dramatic diving, to poolside restaurants (as at Botongo Bay Beach and Tennis Club), to duty-free shopping and beachfront watersports.



photos/Geri Murphy

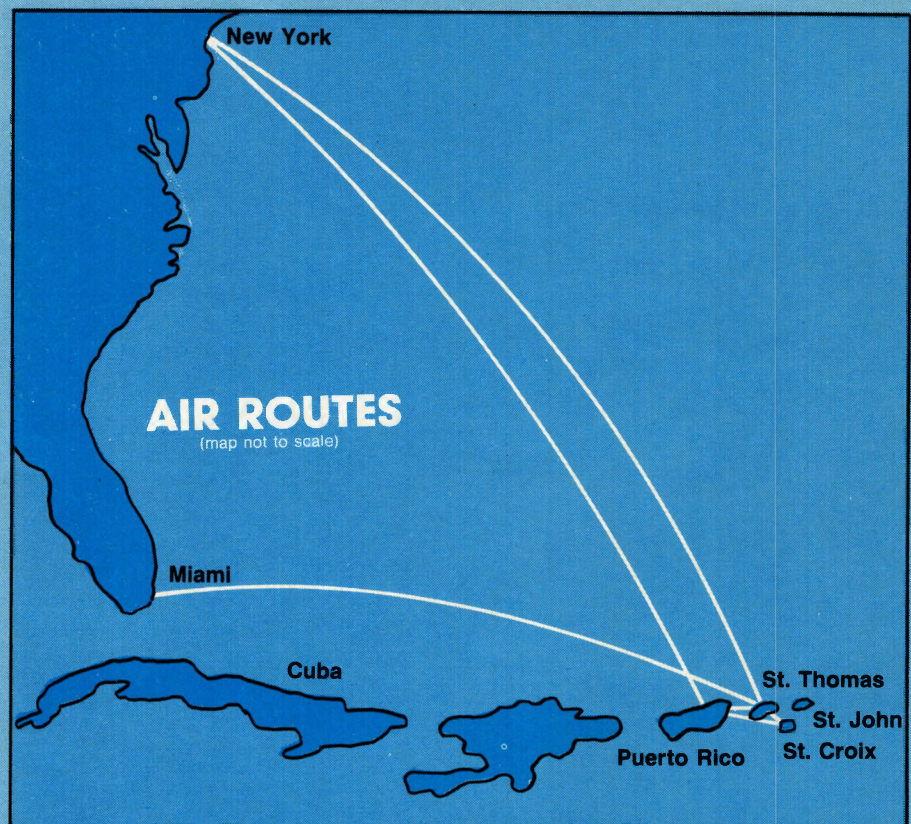


flies to St. Thomas from Miami and also continues to St. Croix. At this writing, Pan Am is starting direct flights—check with your travel agent. Several major airlines fly to San Juan, Puerto Rico; you then take a 25 minute commuter flight to St. Thomas or a 45 minute flight to St. Croix. Although less costly than direct flights, commuter flights are less convenient and appear to have more baggage problems. To go to St. John, first fly to St. Thomas. Then, take a water ferry or the VI Sea-plane Shuttle (known as The Goose) to St. John. Interisland travel is also easy. Numerous water ferries and The Goose connect St. Thomas, St. John, St. Croix and Tortola in the British Virgin Islands. Because the U.S. Virgin Islands are a U.S. Territory, U.S. citizens do not need a passport for entry, but as many USVI dive operators take trips to the BVI, U.S. and Canadian citizens should bring a passport, voter registration card, authenticated birth certificate or citizenship certificate for entering BVI waters—even if you don't step off the boat.

Rental cars are available at the St.



Top: Picturesque Charlotte Amalie, capital city of the U.S. Virgin Islands, rises above the blue water of St. Thomas Harbor on the island of St. Thomas. **Insets:** The U.S. Virgin islands are usually warm and sunny—perfect weather for a beach stroll in a bikini.



Thomas and St. Croix airports and several smaller rental companies are scattered throughout both islands. Jeep rentals are available at Cruz Bay on St. John.

The weather is warm and sunny with occasional rain. Temperatures are about 82°F in summer and 77° in winter. Humidity is usually high throughout the year. Evening temperatures are usually in the 70s. Clothing is casual and men frequently wear shorts. Jackets are rarely required and you never need a tie. Beachwear and light clothing can be purchased after you arrive.

English is the language of the USVI and U.S. dollars are the basic currency. Major credit cards and traveler's checks are usually acceptable, but some hotels and businesses won't accept credit cards.

ST. THOMAS

ST. THOMAS ACTIVITIES

St. Thomas is an exciting combination of store filled city, lovely mountains,

beachside resorts and accessible diving. Charlotte Amalie, on the waterfront of St. Thomas Harbor, is the capital city of the U.S. Virgin Islands.

The finest gift selections from all over the world are condensed into an area of about four city blocks. In A. H. Riise alone

you will find watches, gold and other fine jewelry, china, crystal, leather goods, perfumes and gem stones. Other shops have stereo equipment, art, local crafts, cameras, clothing, children's toys and more. The choices are so great even men enjoy shopping here.

ST. THOMAS RESORTS AND HOTELS

Anchorage Beach Villas

Rte. 6
St. Thomas, USVI 00801
(809) 775-3300

Bluebeard's Castle Hotel

P.O. Box 7480
St. Thomas, USVI 00801
(809) 774-1600

Bolongo Bay Beach and Tennis Club

P.O. Box 7337
St. Thomas, USVI 00801
(809) 775-1800

Caribe Beach Hotel

P.O. Box 340
St. Thomas, USVI 00801
(809) 774-2525

Frenchman's Reef Beach Resort

P.O. Box 7100, Charlotte Amalie
St. Thomas, USVI 00801
(809) 774-8500

Limetree Beach Hotel

P.O. Box 7307
St. Thomas, USVI 00801
(809) 774-4770

Pineapple Beach Resort

P.O. Box 8267
St. Thomas, USVI 00801
(809) 775-1510

Point Pleasant Resort

Estate Smith Bay #4
St. Thomas, USVI 00801
(809) 775-3495

Sapphire Beach Resort

P.O. Box 8088
St. Thomas, USVI 00801
(809) 775-0755

Secret Harbor Beach Hotel

P.O. Box 7576
St. Thomas, USVI 00801
(809) 775-1010

The Anchorage Condos

8-57-4 Nazereth Bay
St. Thomas, USVI 00801
(809) 775-4844

Villa Olga

P.O. Box 4976
St. Thomas, USVI 00801
(809) 774-1376

Watergate Villas

Estate Bolongo
St. Thomas, USVI 00801
(809) 775-2270

Windward Passage Hotel

P.O. Box 640
St. Thomas, USVI 00801-0640
(809) 774-5200; (800) 524-7389

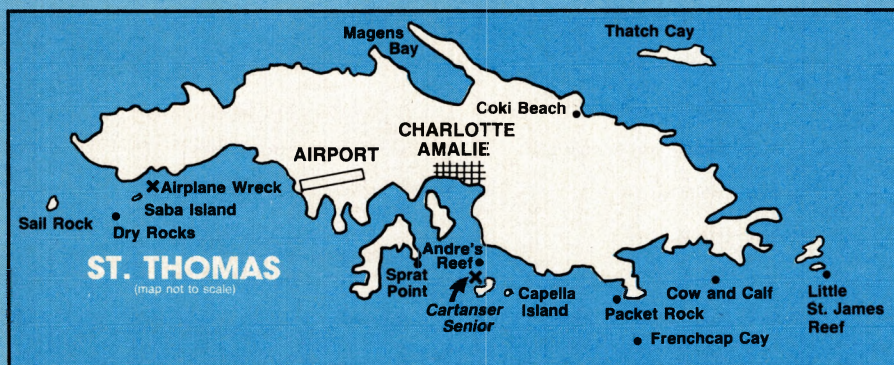
Yacht Haven Hotel and Marina

P.O. Box 7970
St. Thomas, USVI 00801
(809) 774-9700; (800) 524-7877



photo/Kathie Mullins

Even the animals of the USVI know how to dress elegantly—here a nurse shark sports a decorative gold chain.



Do explore St. Thomas by rental car or guided tour and bring your camera to record the spectacular views from the higher elevations. Drive on the left and watch out for goats and chickens strolling down some of the out of town roads. For beaching, visit Magens Bay. This beautiful, white sand beach is one of the world's finest. For sailboarding lessons, visit Sapphire Beach Resort. For golfing, tee off at the 18 hole, full service Mahogany Run Golf Course. At least 15 hotels have tennis courts. Non-divers should visit Coral World where they can stand, safe and dry and look under the sea through glass windows.

In the evening, you can dine close to the waterfront and enjoy the beach and the sea breeze or you might choose a hillside restaurant where you can look down at the lights of Charlotte Amalie and the ships and boats in the harbor. Local entertainment—calypso and reggae singers, limbo dancers and steel bands—adds a colorful touch to the island atmosphere. You can dance to a rock band at a lively discotheque.

Your good time in St. Thomas begins when you are offered a complimentary rum punch upon arrival at the Harry S Truman Airport. The baggage claim area is less than 40 feet from waiting vans and taxis, rental cars are available and your hotel will be no more than a 25 minute

SDM DINING GUIDE TO ST. THOMAS

Restaurant	Phone	Location	Closed	Credit Cards
Bird of Paradise	775-5686	Secret Harour	Sundays	AE*
Bluebeard's Terrace	774-1600	Charlotte Amalie		AE, CB, DC, MC, Visa
Cafe Normandie	774-1622	Charlotte Amalie		AE, MC, Visa
Chart House	774-4262	Charlotte Amalie		AE, CB, DC, MC, Visa
China Gardens	776-3256	Charlotte Amalie		AE, CB, DC, MC, Visa
El Papagayo	775-1550	Tutu	Sundays	No
Fiddle Leaf	775-2810	Bolongo Bay	Mondays	AE, MC, Visa
Harbour View	774-2651	Charlotte Amalie	Tuesdays	AE, MC, Visa
Hotel 1829	774-1829	Charlotte Amalie	Sundays	AE, MC, Visa
L'Escargo	774-6565	Charlotte Amalie	Sundays	AE, MC, Visa
Mafolie Hotel		Charlotte Amalie		AE, MC, Visa
Parkside	774-1695	Charlotte Amalie	Sundays	AE, MC, Visa
Stone Farm House	775-5000	Mahogany Run	Tuesdays	AE, DC, MC, Visa

*AE=American Express, CB=Carte Blanche, DC=Diners Club, MC=MasterCard

St. Thomas Diving Club

...invites you to

bolongo bay

BEACH AND TENNIS CLUB

ST. THOMAS, U.S. VIRGIN ISLANDS

Look for family fun and sun drenched days at Bolongo Bay, a quiet tropical seaside haven. Each room is equipped with efficiencies and an outdoor barbeque area. Activities included in your room rate are an introductory scuba lesson, sunfish sailing, tennis and a days sail aboard the Ho-Tei. For the certified diver, Bolongo Bay offers a full diving schedule and convenient connections to dive centers.

UNLIMITED DIVE PASS...

The St. Thomas Diving Club's Unlimited Dive Pass is included in all dive packages. If you are a certified diver with your own equipment you can use your dive pass on all 4 of our dive boats including the 68 foot Super Boat Mohawk II and the 51 foot Caribe Diver located at Villa Olga and Bolongo Bay's own Diver II. So come to the St. Thomas Diving Club and dive the Atlantic and Caribbean waters, the U.S. and British Virgin Islands.



You'll enjoy diving on Bolongo Bay's own Diver II (above) as well as the 68 foot Super Boat Mohawk II and 51 foot Caribe Diver.

8 Days/7 Nights

Unlimited Diving.....	\$650.00
Non-diver.....	\$350.00
Per person. Double occupancy.	
Learn To Dive - 8 Days/7 Nights.....	\$600.00
PADI Open Water Certification.	

April 15 - December 20, 1985

Come have the time of your life...

bolongo bay

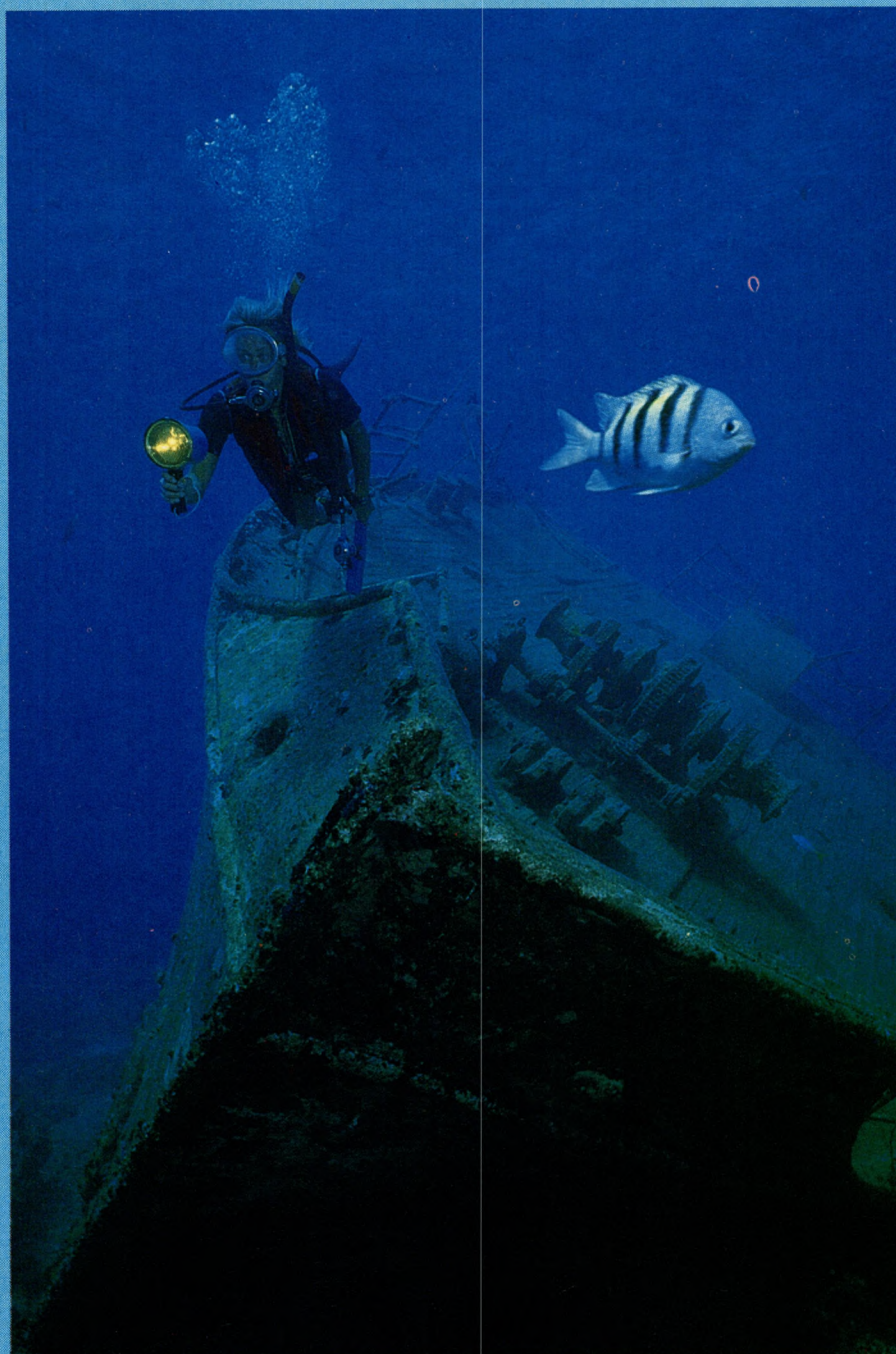
BEACH AND TENNIS CLUB

P.O. Box 7337 • St. Thomas, U.S.V.I. 00801

For Information: 800-775-1800

For Reservations: 800-524-4746

Winter Space Still Available At Slightly Higher Prices.



photo/Geri Murphy

A diver cruises over the *Cartanser Sr.*, deliberately sunk to create a dive site.

ride away. Be sure to pick up a free copy of St. Thomas This Week at the tourist information booth near the baggage claim. This weekly guide includes maps, shopping guides, transportation schedules and other helpful information about visiting St. Thomas and St. John.

ST. THOMAS DIVE OPERATORS

AQUA-ACTION, INC., at Secret Harbor, has a dive package with the Secret Harbor Beach Hotel. They offer shore dives off the beach, just a few yards from the dive store and dives from their two boats. The retail shop stocks beachwear, snorkel and scuba equipment and U/W photo equipment. Rentals include 110 U/W

cameras and U/W photography is a shop specialty. Aqua-Action can also arrange a luxurious day sail aboard a large sailboat available with a captain and mate.

CHRIS SAWYER'S DIVING CENTER is near the dock at Compass Point Marina. Sawyer specializes in taking small groups out on his sparkling new custom 42 foot dive boat, *Fool's Gold*. He also personally leads snorkeling tours and a variety of dives to coral reefs, the Airplane Wreck and night dives. Resort courses are available on short notice and certification is available. His shop has a full line of rental scuba gear and U/W cameras. Although Sawyer doesn't have a hotel package, he will recommend

nearby apartments, condos and cottages and will provide door to door transportation for diving. He stated that if you aren't satisfied with the service you receive, in his shop and on his dives, you will get your money back.

Sawyer can also arrange for day sailing, snorkeling or diving aboard the 65 foot *Pipe Dream* with Captain Pipe. Sawyer picks you up at 9:00 am and *Pipe Dream* is under sail by 10:00. All diving and snorkeling gear is furnished and food and drinks are provided. After a day of sailing, snorkeling and/or diving, *Pipe Dream* returns to the marina at 5:00 pm.

JOE VOGEL DIVING CO., the oldest certified scuba school in the USVI, is celebrating its 25th year in business. They specialize in personalized instruction and guided beach diving which includes sunrise and night dives. While Debby Powers Vogel handles the business matters, Joe personally conducts all classes and dives. In his words, "If someone wants me to hold their hand and take them down, I'll gladly do it." His sites include the Airplane Wreck, Coki Beach and Ca-brita Point and he can often furnish transportation with his van. Debby offers an U/W photo service for divers who wish to be photographed during their dive with Joe.

ST. THOMAS DIVING CLUB, a Five Star PADI training facility owned by Dick

ST. THOMAS DIVE OPERATORS

Aqua Action, Inc.

P.O. Box 12138
St. Thomas, USVI 00801
(809) 775-3275

Caribbean Divers

Red Hook
St. Thomas, USVI 00802
(809) 775-6384

Chris Sawyer Diving Center

41-6-1 Estate Frydenhoj
St. Thomas, USVI 00802
(809) 775-7320

Joe Vogel Diving Company

P.O. Box 7322
St. Thomas, USVI 00801
(809) 775-7610

Sea Adventures

P.O. Box 9531
St. Thomas, USVI 00801
(809) 774-8500 ext. 625 or 353

St. Thomas Diving Club

(Mohawk II)
P.O. Box 4976
St. Thomas, USVI 00801
(809) 774-1376

Tours Exotique, Inc.

#7 Smith Bay
St. Thomas, USVI 00801
(809) 775-4716

Underwater Safaris of St. Thomas

P.O. Box 8469
St. Thomas, USVI 00801
(809) 774-1350

Virgin Is. Diving Schools/Supplies, Inc.

P.O. Box 9707
St. Thomas, USVI 00801
(809) 774-8687; 774-7368

Watersports Center

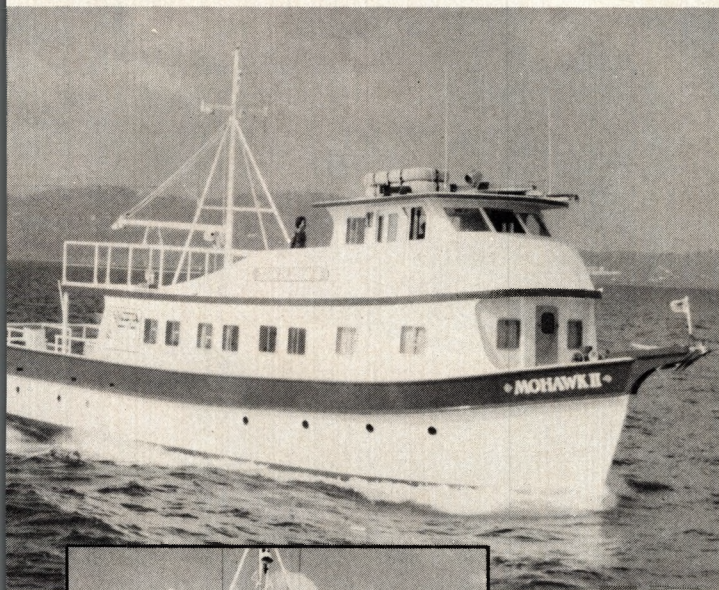
P.O. Box 8088
St. Thomas, USVI 00801
(809) 775-0755

MOHAWK II...

St. Thomas Diving Club's pride of the fleet. A 68' luxury live aboard dive boat — "one of the newest and most handsomely appointed dive boats in the world." (Skin Diver)

Limited 1985 Availability

Mar 10-17	June 16-23	Sept 8-15
April 14-21	July 14-21	Oct 13-20
May 12-19	Aug 11-18	Nov 17-24
December 8-15		



Mohawk II Dive Platform

Mohawk II Underway

VILLA OLGA...

St. Thomas Diving Club's very own "diving hotel," run by divers for divers. It's the headquarters for the St. Thomas Diving Club and the home of the Chart House Restaurant. Reasonably priced accommodations featuring amenities found only at higher priced resorts.



Villa Olga Training Pool



Villa Olga Bar

For information, rates and brochures
about all the features of the
St. Thomas Diving Club, write or call



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P.O. Box 4976, St. Thomas, U.S.V.I. 00801

(809) 774-1376 for information

(800) 524-4746 for reservations



Photograph by Jim and Cathy Church

“Wrecks, caves, pinnacles, walls, colorful reefs, fish, and even seahorses— the U.S. Virgin Islands have it all.”

Jim and Cathy Church

“The Virgin Islands have a fantastic variety of excellent dive sites. And after the diving, the scenic views and beaches are magnificent, the historical sights are fascinating, the shopping opportunities are delightful.

“At night, the variety of restaurants and clubs will satisfy every taste and mood. And if you still have the energy to party, there’s live entertainment and dancing from steel bands and limbo to electric guitars and disco.”

St. Croix

St. John

St. Thomas

United States Virgin Islands

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circle #153 on Reader Service Card



photo/Kathie Mullins

A diver gets a close look at a small scorpionfish. The marine life in the USVI is diverse and colorful. Many sites feature tame fish.

Doumeng, is based at Villa Olga and has branch operations at Bolongo Bay Hotel at Bolongo Beach, Point Pleasant Hotel and the new Virgin Grand Beach Hotel (under construction at this writing) at Pineapple Beach. STDC offers shore diving at Coki Beach but specializes in boat diving at a variety of sites. The 52 foot *Caribe Diver* can take up to 30 divers and *Diver I* and *Diver II*, 25 foot Deltas, can take up to 13 divers each. Captains Paul Doumeng and Andre Webber know the waters and will show you a good time.

STDC, a PADI Diving Society resort destination, has dive packages with Bluebeard's, Bolongo Bay, Caribe Beach, Limetree, Point Pleasant and Villa Olga. Under course director Pam Balash, STDC is a PADI sanctioned Five Star Instructor Development Center and can conduct resort courses and certification courses up to IDC (Instructor Development Course). Both a covered open-air and an enclosed air-conditioned classroom are used for instruction at Villa Olga and pool lessons are given at all five STDC locations. A complete line of beachwear and related sundries and scuba equipment is available at the Villa Olga headquarters and the branch operations.

Villa Olga/STDC is largely a diver's resort. While it lacks a beach, Villa Olga is within walking distance of Charlotte Amalie's famous shops and restaurants. The main thrust of Villa Olga is boat diving

and dive instruction. The two classrooms are available to groups for meetings and lectures. The upper eight rooms overlook the Villa Olga pool and have an excellent view of St. Thomas Harbor.

Breakfast and lunch are served on Villa Olga's covered porch and the Decompression Chamber (bar) is open throughout the day and early evening. Although dinner isn't served at Villa Olga, an excellent Chart House restaurant—specializing in steak, seafood, prime rib and a superb salad bar—is on the shoreline, just 100 feet around the corner.

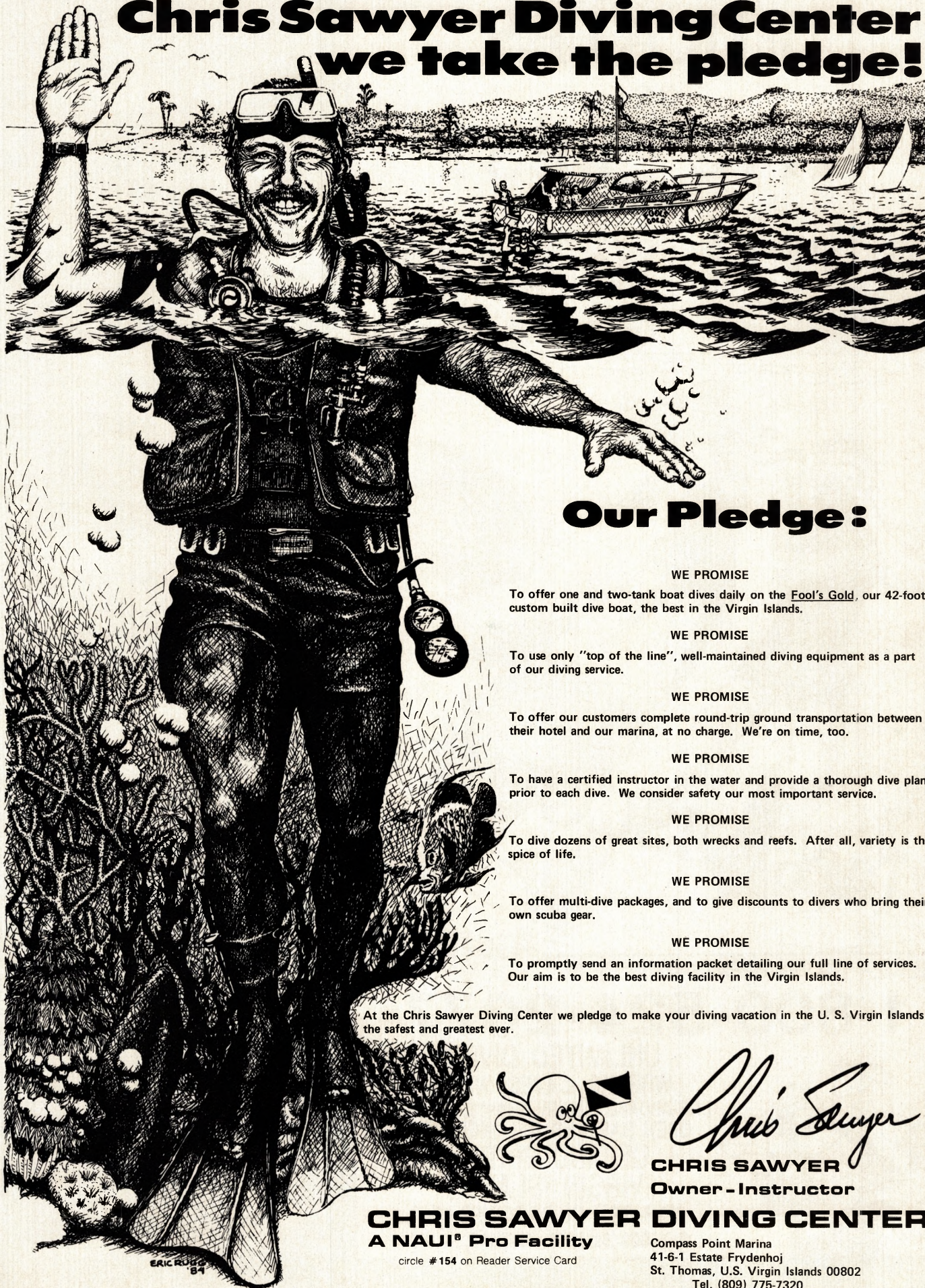
BOLONGO BAY BEACH AND TENNIS CLUB has a pleasant location at sheltered Bolongo Bay. The three level bar, restaurant and dance floor structure is shaded by flowering hibiscus and tropical palms. You can enjoy dinner at any one of three levels. The lower level is close to the live entertainment, the middle level overlooks the pool and the upper level is among the rustling palms. Each side of the bar has a different personality. One faces the lower level of the restaurant; the second faces an open patio; the third is a lowered, secluded area; and the fourth side faces the pool, where you can stand in the water and enjoy a cool drink. The four tennis courts are open day and night and tennis instruction is offered. Sunfish and sailboards are available and the STDC branch dive shop, dock and boat are only a short walk from your room.

MOHAWK II is a 68 foot live-aboard dive boat that can accommodate 16 divers on overnight trips within the USVI or BVI and many more on day trips. Flagship of the STDC fleet and based at Villa Olga, *Mohawk II* has eight air-conditioned staterooms for guests, a full sized galley and comfortable dining area and a spacious upper deck for sunning. It has a compressor, storage bank, tanks and individual gear lockers.

SEA ADVENTURES, owned and managed by Janet Mandown, is near and has a dive package with Frenchman's Reef Hotel. She runs two boat trips a day, seven days a week, with two 26 foot Pacemakers that carry six divers plus an instructor/captain. Sea Adventures also has a dive package with Windward Passage Hotel—divers travel to the dive shop on the Sea Adventures Harbour Ferry Service. Basic instruction and open water checkouts are available. Inquire about the specialty courses such as deep diving, navigation and diver stress and rescue. Sailing trips that combine snorkeling and diving to Little Buck Island and St. John as well sunset cocktail cruises are available. The shop has basic beachwear and dive accessories available and Sea & Sea 110 cameras for rental.

TOURS EXOTIQUE INC., founded by Mark Sabino, is a new operation whose goal is to put local divers in touch with tourists. Offering camping, snorkeling,

At the Chris Sawyer Diving Center we take the pledge!



Our Pledge:

WE PROMISE

To offer one and two-tank boat dives daily on the Fool's Gold, our 42-foot, custom built dive boat, the best in the Virgin Islands.

WE PROMISE

To use only "top of the line", well-maintained diving equipment as a part of our diving service.

WE PROMISE

To offer our customers complete round-trip ground transportation between their hotel and our marina, at no charge. We're on time, too.

WE PROMISE

To have a certified instructor in the water and provide a thorough dive plan prior to each dive. We consider safety our most important service.

WE PROMISE

To dive dozens of great sites, both wrecks and reefs. After all, variety is the spice of life.

WE PROMISE

To offer multi-dive packages, and to give discounts to divers who bring their own scuba gear.

WE PROMISE

To promptly send an information packet detailing our full line of services. Our aim is to be the best diving facility in the Virgin Islands.

At the Chris Sawyer Diving Center we pledge to make your diving vacation in the U. S. Virgin Islands the safest and greatest ever.



Chris Sawyer

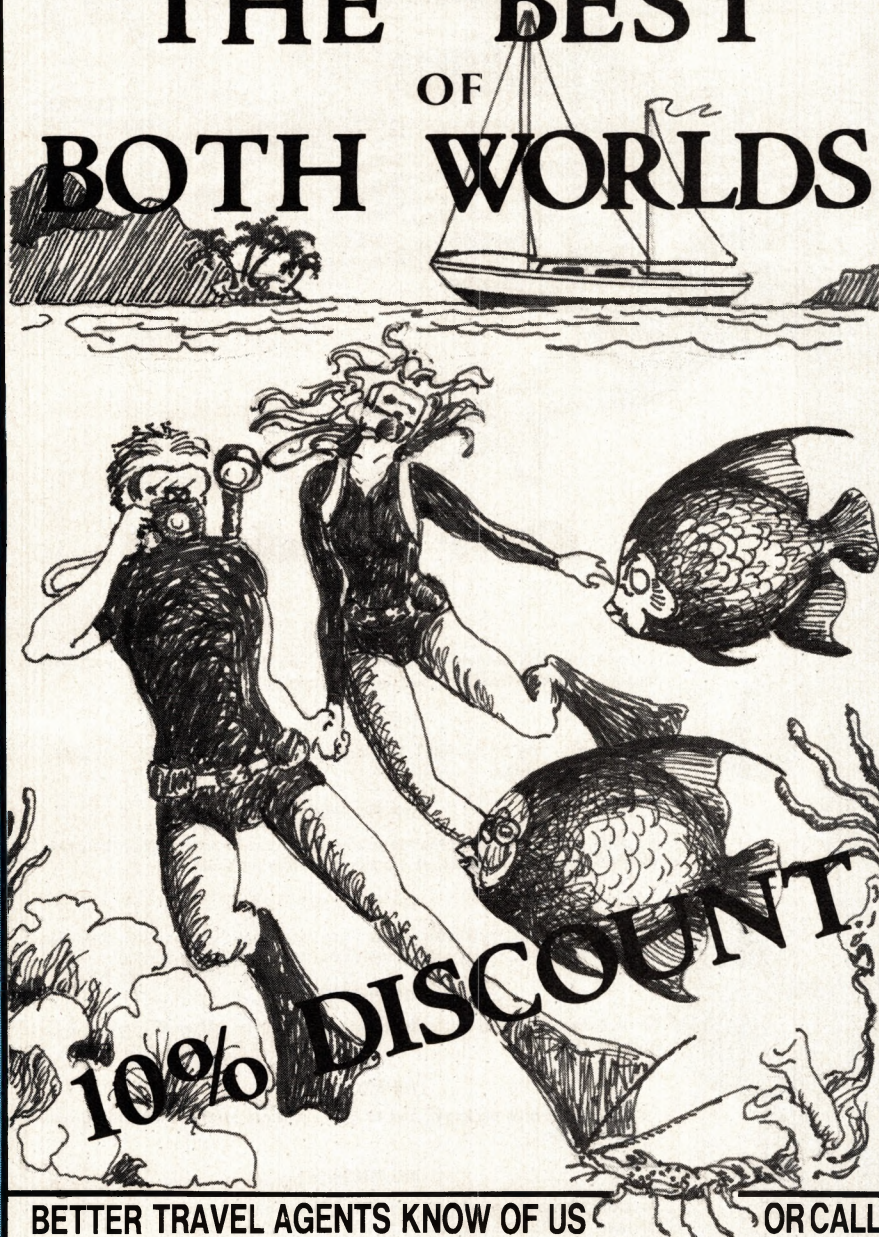
CHRIS SAWYER
Owner - Instructor

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hiking and fishing, as well as scuba diving, he wants his guests to have a cultural experience rather than a standard dive trip. The shop is decorated with excellent local artwork, including Sabino's. Their 22 foot Mako and 21 foot Sea Bird can take guests to a variety of locations.

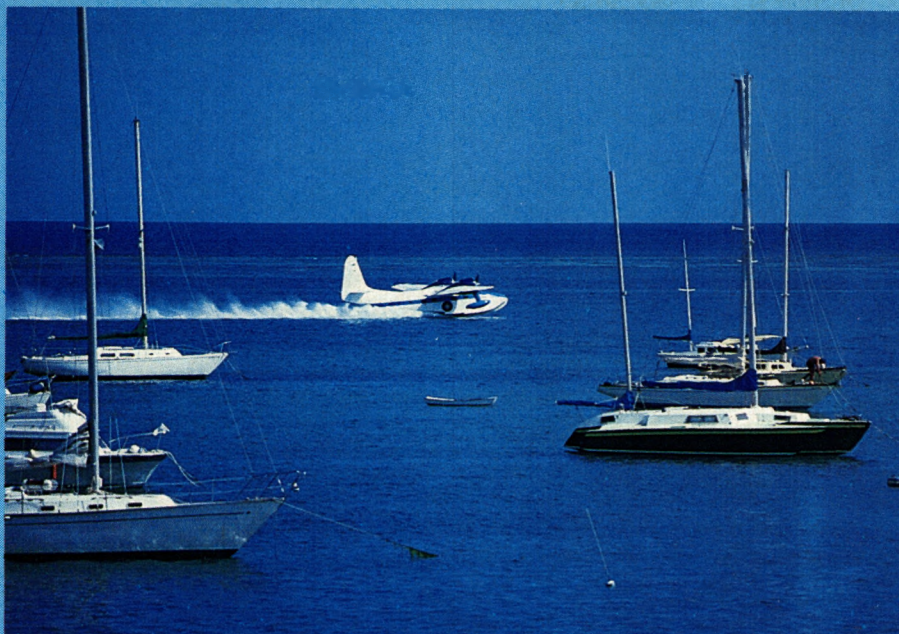
UNDERWATER SAFARIS, owned and managed by Tricia and Mel Luff, is at the Yacht Haven Hotel and Marina dock. Their lovely shop has a generous inventory of beachwear, snorkel and scuba and fishing gear and books. Resort and certification courses are offered with beginning instruction held in the hotel pool. Their two boats, a 25 foot powerboat and a 41 foot Gulfstar sailboat, are available for daily dive trips. The specialty is a full day sail and dive trip to Little Buck Island (the site of the *Cartanser Sr.*) that includes lunch and drinks. While they have a dive package with Yacht Haven Hotel, they can pick up divers at other hotels.

VIRGIN ISLAND DIVING SUPPLIES, INC., Marvin Ellis' full service dive shop, is across the street from Yacht Haven Hotel. Dive trips are run Tuesday to Saturday aboard the 32 foot *Dulcinea* and 54 foot *Minx II* and two smaller power boats. Lunch is provided on long trips. Shore dives are conducted at Coki Beach. VIDS specialty is diver education. A variety of courses, such as CPR, lifesaving and scuba certification are offered in three air-conditioned classrooms. VIDS also handles one day resort scuba courses for visiting cruise ship passengers as well as visitors staying on the island.

WATERSPORTS CENTER has a dive package with Sapphire Beach Resort and its small shop and three boats are at the resort marina. Manager Pam Lowenhaupt describes the specialties as night diving, wreck diving and filling the needs of large or small groups. Sightseeing, motorboat charters and scuba instruction are all available. Classroom instruction is outdoors, under the coconut palms and beginning U/W work, at a beach. Shore diving, with an average swim of 25 yards, is available. Watersports Center's three boats—the 42 foot *Sea Trek*, 32 foot *Stormy Petrel* and 26 foot *Argonaut*—carry up to six divers each, so different groups can go to different sites, depending on their experience and destination preference. Boat rides are about 30 minutes or less one way, free beer and soda are included. There is car or truck pickup for divers from the east end of St. Thomas and a boat pickup on St. John. The dive store stocks beachwear and basic scuba gear.

CHARTERING A YACHT

Chartering a yacht can be an exciting way to combine sailing with snorkeling and scuba diving. Several yacht charter brokers specialize in finding particular boats to fit the needs of individual customers. Using a broker is often the most sensible approach because they know



The VI Seaplane Shuttle connects St. Thomas, St. John, St. Croix and Tortola in the BVI.

what boats and crews are available and the crews know the local waters. A typical sailing yacht is often an owner-operated, 50 to 80 foot boat with a crew of two to four, and that sleeps up to six or eight guests. Some have compressors, divemasters and instructors aboard. Just list your needs when you contact the yacht charter broker.

You can charter a yacht with or without crew, depending on your sailing experience. If you like to raise the sails and anchor yourself but don't want to be responsible for the entire boat, just get a boat with a captain only. If you want care-free luxury, a fully crewed yacht is best. Yacht charter brokers usually have provision packages. You choose from several menu plans, packaged in the proper proportions by the broker.

ST. THOMAS YACHT CHARTER BROKERS

Pirates In Paradise

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St. Thomas, USVI 00801
(800) 524-2077

Second Wind Charters

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St. Thomas, USVI 00801
(809) 775-1469; (800) 534-2029

Starboard Yacht Charters

P.O. Box 2253
St. Thomas, USVI 00801
(809) 776-4240

V.I. Scuba/Sail Charters

P.O. Box 10966
St. Thomas, USVI 00801
(809) 776-2860; (800) 524-2005

V.I. Water Safaris

P.O. Box 9997
St. Thomas, USVI 00801
(800) 524-7676

DIVING ST. THOMAS

Andre's Reef, at the northwest end of Little Buck Island (not to be confused with Buck Island off St. Croix) is good for both beginning and advanced divers. The bottom slopes from about 40 to 80 feet and you will see fish, eels, octopus and occasionally, a large ray. It is a fairly large site, thus groups of 15 to 20 divers can spread out and enjoy the dive.

Capella Island is close to Little Buck's eastern end. Her sloping reef is covered with lettuce corals and is loaded with eels, pufferfish and lobster.

Cartanser Sr. is probably St. Thomas' most widely publicized dive site. An intact, steel hulled, 190 foot freighter, the *Cartanser* was deliberately sunk in 40 feet of water, in the protected cove at Little Buck Island, to create a dive site. She is home for numerous tame fish. Release some fish food in the water and the yellowtails will mob you. Numerous photographs taken in her silent engine room and through empty portholes have been winners in national U/W photo contests.

And, in addition to the wreck, the reef life along the edges of the cove is lush with macro subjects.

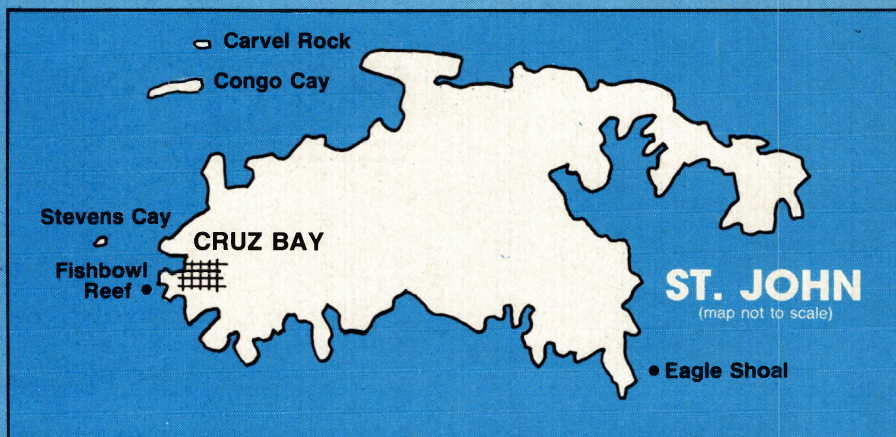
Coki Beach is one of the best shore dives on St. Thomas. Dive operators often use Coki for introductory and certification training dives and snorkelers are everywhere. While part of Coki's popularity is owing to its protected location, the main draw is the offshore reef. It begins about 100 feet from shore and slopes gently from 25 to 45 feet. The fish are tame and beautiful settings provide photogenic backdrops for small critters.

Cow and Calf are two pinnacles that break the surface near the southeast end of St. Thomas. Huge rock formations lie submerged between these rocks, thus yachtsmen avoid steering the dangerous course between the cow and its calf. The site is honeycombed with caves, tunnels and ravines with depths of 25 to 35 feet. A school of copper sweepers resides in one cave, a large nurse shark frequently sleeps in a second and a large turtle sometimes hides in a third. Sponges and banded coral shrimp cover roofs and walls of the caves and arrowcrabs hide in small crevices. Outside, swimming safely at the bottom of a ravine, you can look up at the foamy white water swirling over the rocks above.

Dry Rocks consists of a group of rock formations from about 10 to 40 feet. The eastern side features elkhorn corals and vertical fingers of pillar coral. Schools of spadefish are often seen on the southwest side. The western edge has vertical cuts in its rocky sides, lined with colorful sponges and seafans. These form excellent frames for wide angle diver portraits.

Fortuna Beach is the site of the **Airplane Wreck**, a four engine Constellation that crashed into the sea in 1981 and now lies in 40 feet of water just 150 yards off the beach. Its fuselage is largely intact, the huge rudders sway with the gentle motion of the water and you can sit in the pilot's seat.

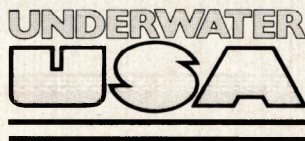
Frenchcap Cay is a conical pinnacle thrusting up through the surface about six miles south of St. Thomas. In the shallow areas you will find a forest of elkhorn corals and caves and tunnels lined with



From #1 to #2

America's first newspaper for divers has grown to the second largest monthly dive publication in America in just eight months. From the beginning, our readers have realized **UNDERWATER USA** is current and informative, interesting and exciting. To become a subscriber to the fastest growing dive publication in the nation, mail the attached cards or call today.

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featherstars and sponges. In the deeper areas, from 50 to 90 feet, you will see huge basket sponges and delicate sea-fans. Barracuda always glide by and you may see large rays or schools of horse-eye jacks.

Little St. James Ledges, off the southeast side of Little St. James Island, has diving depths of about 10 to 40 feet. An undercut ledge, rimmed with fire corals and plumeworms, runs along the western side. The undersides are lined with red encrusting sponges and yellow cup corals. Red squirrelfish peer out from their hiding places.

Sail Rock juts up through the surface about four miles below the western tip of St. Thomas. Its sides plunge vertically to 90 feet. Elkhorn corals reach out from the upper portions while large seafans decorate the lower rock surfaces. Queen angels are often seen in schools numbering six or eight. Because there may be a current running, Sail Rock is for experienced divers only.

Sprat Point is off the southern tip of Water Island. It has a wide variety of hard corals and small tunnels and shallow canyons in about 40 feet. At night, lobster, pufferfish and eels are seen.

The R.M.S. *Warrick*, a packet ship loaded with china and tiles, smashed against **Packet Rock** in 1816. Today, although her wooden hull has disintegrated, searching through the sand for small treasures such as pieces of china, clay pipes and cannonballs can be exciting.

ST. JOHN

ST. JOHN ACTIVITIES

St. John is a lovely, unspoiled island hideaway just a 20 minute ferry ride to

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SDM DINING GUIDE TO ST. JOHN

Restaurant	Phone	Location	Closed	Credit Cards
Caneel Bay	776-6111	Cruz Bay		AE*, MC, Visa
Frank's	776-6848	Cruz Bay		AE
Mongoose Cafe	776-6454	Cruz Bay		
Rain Tree	776-9817	Cruz Bay	Mondays	MC, Visa

*AE=American Express; MC=MasterCard

Buck Island, northwest of Christiansted, St. Croix, is the ideal snorkeling destination. Tour operators offer boat trips to this area.



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* PER PERSON
PER DAY

8 DAYS / 7 NIGHTS UNLIMITED DIVE PACKAGE

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---December 14, 1985. • \$85.00 Per Day Per Person December 15, 1984
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3 - 2 Tank Dives

Diver	Non Diver
\$350	\$140

per person, double occupancy tax not included

PACKAGE INCLUDES

- Monday Rum Punch Party
- Transportation to Dive Sites, Beaches and Coral World Attraction
- Shopping Discount at A.H. Riise

8 Days / 7 Nights
Effective 5/1/84 - 12/17/84

5 - 2 Tank Dives

Diver	Non Diver
\$595	\$245

per person, double occupancy tax not included

- Complete Dive Gear (Deduct \$10 per dive with own gear)
- Air
- Air Conditioned Room, private bath, telephone

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Sea Adventures

P.O. Box 9531, St. Thomas,
U.S. Virgin Islands 00801

the east of St. Thomas. With about two-thirds of St. John being part of the Virgin Islands National Park, much of the island's natural beauty remains untouched by development. Twenty-one mapped and marked hiking trails weave along semi-desert slopes or up mountainsides covered with subtropical, moist forests. Uncrowded sand beaches beckon and the snorkeling is superb.

Picturesque Cruz Bay is the commercial center of the island. Allow yourself at least a half hour stroll through the streets

ST. JOHN ACCOMMODATIONS

Caneel Bay Plantation

P.O. Box 120
St. John, USVI 00830
(809) 776-6111

Carla's Cottages of St. John

P.O. Box 432
St. John, USVI 00830
(809) 776-6133

Estate Zootenvaal

Hurricane Hole
St. John, USVI 00830
(809) 776-6321

Pelican Peak (private homes)

Attn: Ann Frick
38 McLune Ave.
Bradford, PA 16701
(814) 368-9446

Sea Breeze Villas

P.O. Box 656, Cruz Bay
St. John, USVI 00830
(809) 776-6416

and visit the many craft shops.

The Park Service at Cruz Bay provides free maps showing and describing 21 hiking trails. It also maintains an U/W snorkeling trail at Trunk Bay, where snorkeling gear, showers and refreshments are available.

ST. JOHN DIVE OPERATORS

CORAL BAY WATERSPORTS specializes in night diving, including the *Rhone* when the moon is full and U/W photography with Dave D'Alberto. Owner/manager David Bruer offers both one day resort and full certification courses. He runs daily dive trips for up to six divers in his 22

ST. JOHN DIVE OPERATORS

Coral Bay Watersports

P.O. Box 569
St. John, USVI 00830
(809) 776-6857

Cruz Bay Watersports

P.O. Box 252
St. John, USVI 00830
(809) 776-6234

Jim Travers Caneel Bay Diving

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St. John, USVI 00830
(809) 776-6111

St. John Watersports, Inc.

P.O. Box 70, Cruz Bay
St. John, USVI 00830
(809) 776-6256

foot Aquasport. Bruer has dive packages with Estate Zootenvaal, at Coral Bay and can make arrangements for you to stay at a private home at Pelican Peak. He also can pick up divers anywhere by jeep.

CRUZ BAY WATERSPORTS (formerly Downtown Dive Shop) is a short walk from the ferry dock at Cruz Bay. They offer combination day sailing and snorkeling trips aboard a 35 foot sailboat, snorkeling aboard a 28 foot custom snorkel boat and diving aboard a 33 foot Osprey. Owned by the Marcus Johnstons and Irene Gonzales, the shop specializes in snorkeling and diving for beginners.

JIM TRAVERS CANEEL BAY DIVING is at, and has a dive package with, Caneel Bay Plantation. His 33 foot *Jumbi Jay* and 30 foot *Downtown Diver* each take up to six divers to Congo Cay, Fishbowl Reef, the *Rhone* and a variety of other sites. If you stay at Caneel Bay Plantation, the dive center is only a short walk from the beach and recreation area and the dive boats are moored at the dock. Jim can furnish rental dive gear.

ST. JOHN WATERSPORTS offers three different guided shore dives, with an average swim of 50 yards and a variety of boat dives with an average trip of three hours. They will pick up divers at Gun Bay, Cruz Bay or Maho Bay by jeep or boat. The 35 foot *Cinnamon Bay* carries up to 20 divers and the 20 foot *Midnight Sun* carries up to six. Destinations include Congo Cay, Carvel Rock and Little St. James. Resort and certification courses are available, usually at the Cinnamon Bay Campground branch. The shop, owned by Stuart Brown and managed by Terry Bertolino, carries beachwear, snorkeling and scuba equipment.

PARADISE AQUA TOURS, operated by George Cramera, has the snorkel and scuba concession at Maho Bay Campground and leads snorkeling trips to Trunk Bay. Inquire at the Maho Bay activities desk for schedules and sign-ups.

DIVING ST. JOHN

Carvel Rock is a mass of volcanic rock and coral that juts up through the surface about two miles north of Cruz Bay. The rocky slope, decorated with gorgonians, seaweeds and sponges, angles down to about 80 feet where you may see large rays on the sandy bottom.

The west end of **Congo Cay**, just west of Carvel Rock, plunges vertically at the surface and then slopes gradually down

ST. JOHN CAMPGROUNDS

Cinnamon Bay Campground
P.O. Box 120
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(809) 776-6330
Maho Bay Camps
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St. John, USVI 00830
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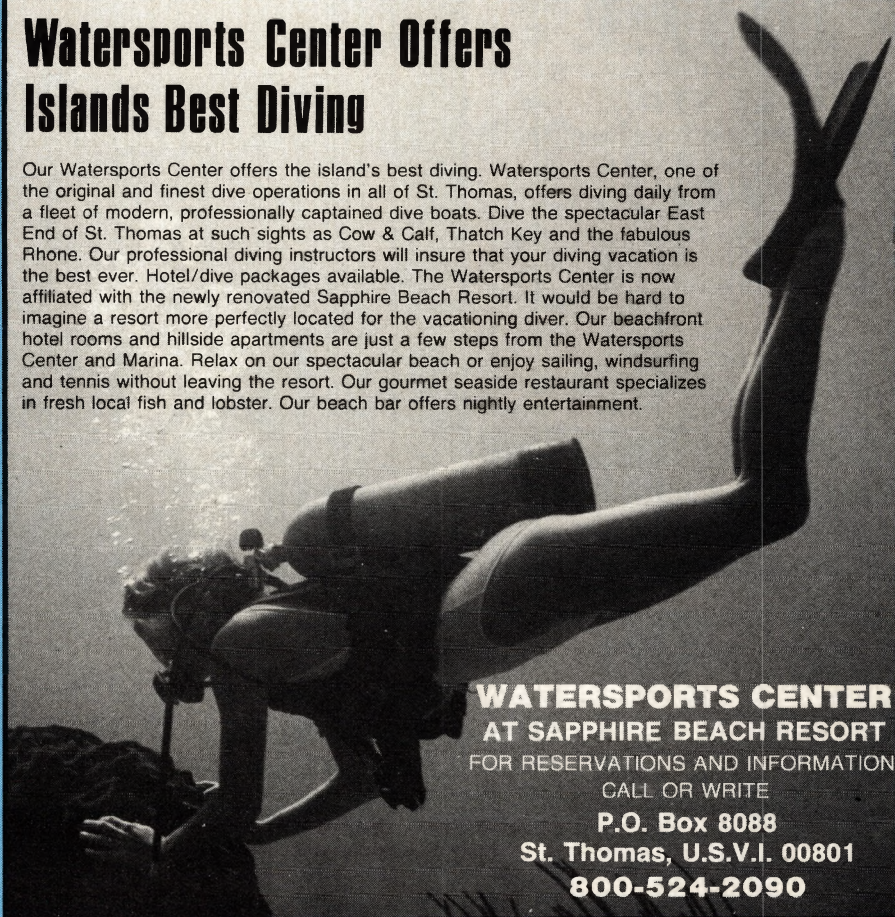
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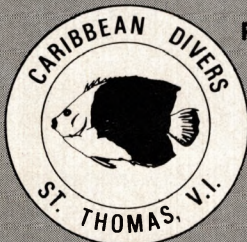
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SDM DINING GUIDE TO ST. CROIX

Restaurant	Phone	Location	Closed	Credit Cards
Binnacle Waterfront	773-4755	Christiansted		AE*, CB, DC, MC, Visa
Brandy Snifter	772-0701	Fredericksted	Sundays	AE
Brass Parrot	773-2100	Buccaneer Hotel	Tue. & Wed.	AE, CB, DC, MC, Visa
Commanche	773-2665	Christiansted	Sundays	AE, MC, Visa
Frank's Place	773-0090	Christiansted	Sundays	MC, Visa
Green Dolphin Street	773-8888	Christiansted		AE, MC, Visa
Seafood & Jazz				
Swashbuckler	772-1773	Fredericksted	Mondays	AE, DC, MC, Visa
Top Hat	773-2346	Christiansted	Sundays	AE, DC, MC, Visa

*AE=American Express; CB=Carte Blanche; DC=Diners Club; MC=MasterCard

to about 85 feet. Close-up photographers will find banded coral shrimps, plume-worms and tiny blennies. The rock formations, adorned with gorgonians, sponges and purple seafans are great back-grounds for wide angle shots.

Eagle Shoal is an exciting reef dive on St. John's south side. It has pinnacles, tunnels and caverns with depths ranging from 35 feet or more.

Fishbowl Reef, a few hundred yards from Cruz Bay, has numerous undercut ledges in only 20 to 35 feet of water. The undersides of the ledges are coated with red sponges and provide colorful back-grounds for schools of grunts that swim beneath the ledges. At **Stevens Cay**, you will find schools of copper sweepers hovering in shallow coral crevices.

past, under seven different flags since Columbus first saw this island in 1493, is reflected in its architecture and customs. The massive cannons of Fort Christian-vaern, built in 1747, still guard Christian-sted Harbor against imaginary pirates; and the government house, steeple build- ing and custom house and other old buildings add to the local color and re- mind us of St. Croix's Danish history.

St. Croix has two main towns, Chris- tiansted and Frederiksted, founded by the Danes in the mid 1700s. Christian- sted, the largest, is by the harbor on the northeast coast. It is a maze of old alleys, quaint shops, small hotels and open air bars that are fascinating to visit. Each time you turn a corner, there is something interesting to see. Shoppers will find French perfumes, china, crystal, batik clothing and jewelry.

Frederiksted is the deepwater port at the western coast where visiting cruise ships tie up at Frederiksted Pier. The Danish architecture of the older buildings is fascinating: Some are truly unusual be- cause Victorian wooden buildings were built on top of Danish brick basements af- ter much of the city was destroyed by fire.

St. Croix has fine restaurants. You can

ST. CROIX

ST. CROIX ACTIVITIES

St. Croix, the largest of the U.S. Virgin Islands, lies 40 miles south of St. Thom- as. The complex history of its turbulent

ST. CROIX HOTELS

Anchor Inn

58-A King Street
Christiansted
St. Croix, USVI 00820
(809) 773-4000

The Buccaneer

P.O. Box 218
Christiansted
St. Croix, USVI 00820
(809) 773-2100

Cane Bay Plantation Hotel

P.O. Box G, Kingshill
St. Croix, USVI 00820
(809) 778-0410

Cane Bay Reef Club

P.O. Box G, Kingshill
St. Croix, USVI 00820
(809) 773-2966

Caravelle Hotel

Queens Cross Street
Christiansted
St. Croix, USVI 00820
(809) 773-0687

Chenay Bay Colony

P.O. Box T
Christiansted
St. Croix, USVI 00820
(809) 773-2918

Club Comanche Hotel

1 Strand, Christiansted
St. Croix, USVI 00820
(809) 773-0210

Estate North Star (private homes)

P.O. Box 505
Christiansted
St. Croix, USVI 00820
(809) 778-3850

Frederiksted Hotel

20 Strand
Frederiksted
St. Croix, USVI 00840
(809) 772-0500

Grapetree Beach Hotel

Turner's Hole
Christiansted
St. Croix, USVI 00820
(809) 773-0430

King Christian Hotel

P.O. Box 3619
St. Croix, USVI 00820
(809) 773-2285

Queen's Quarter Hotel

P.O. Box 770
Christiansted
St. Croix, USVI 00820
(809) 778-3784

Tamarind Reef Beach Club

P.O. Box 1112
Christiansted
St. Croix, USVI 00820
(809) 773-0463

enjoy conch with fine herbs and butter sauce, *coquille* St. Jacques (scallops poached in wine), octopus salad, steaks or Chart House prime rib. And, of course, many small eateries serve hamburgers and cold sandwiches.

ST. CROIX DIVE OPERATORS

CARIBBEAN SEA ADVENTURES' main retail and dive trip reservation office, managed by Jim Hurlburt, is on King's Wharf, below the King Christian Hotel. A dive repair and sales branch is at the end of King's Wharf; a combined business office, air station and sales office is at the St. Croix Marina; and hotel sales concessions are at the Buccaneer Hotel, Grape-tree Beach Hotel and Grapetree Bay Ho-

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BUCK IS. NAT'L MONUMENT

Buck Island, four miles northwest of Christiansted, is an ideal destination for family snorkeling. Tour operators offer half and full day boat trips there. The full day trips usually include a stop at a sandy beach for instruction and lunch, before the guided trip along the snorkeling trail.

ST. JOHN WATERSPORTS, INC.

2 LOCATIONS FOR YOUR CONVENIENCE

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Cruz Bay

2) Cinnamon Bay

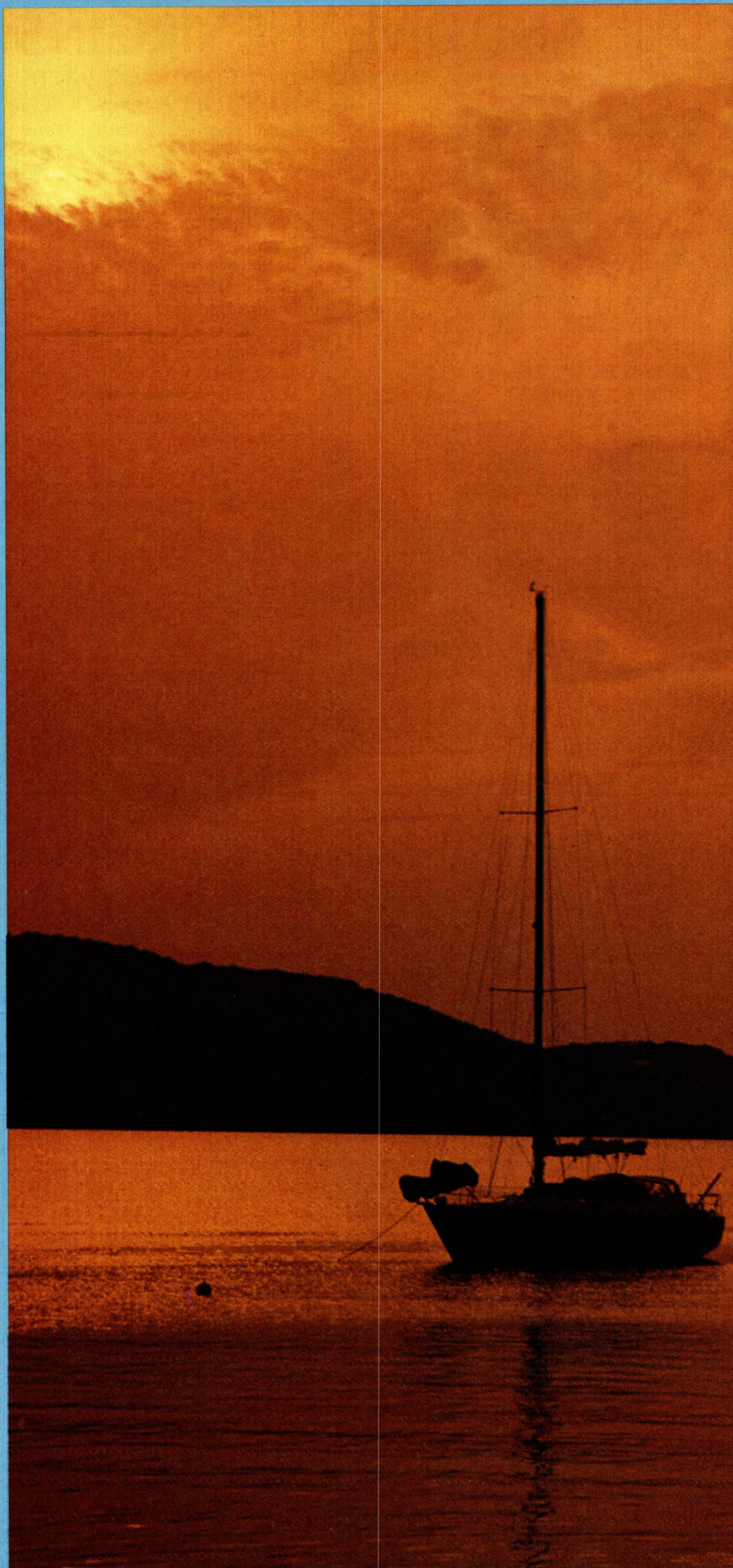
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photo/Kathie Mullins

ST. CROIX DIVE OPERATORS

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P.O. Box 3015
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St. Croix, USVI 00820
(809) 773-6011

Cruzan Divers, Inc.

12 Strand Street
Frederiksted
St. Croix, USVI 00840
(809) 772-3701

Dive Experience, Inc.

P.O. Box 4254
Christiansted
St. Croix, USVI 00820
(809) 773-3307

Sailing Adventures of St. Croix

Club Comanche Dock
Christiansted
St. Croix, USVI 00820
(809) 773-8937; Eve: 773-4183

Sea Shadows

P.O. Box 505, Cane Bay
St. Croix, USVI 00820
(809) 778-3850

V.I. Divers, Ltd.

Pan Am Pavilion
Christiansted
St. Croix, USVI 00820
(809) 773-6045

tel. Owner Larry Angus has dive packages with all of these hotels, plus the Queen's Quarter Hotel.

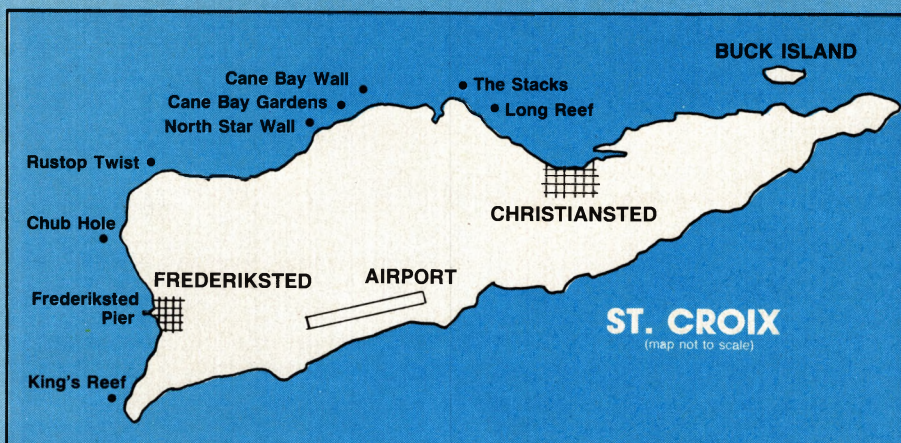
CSA offers guided shore diving and boat diving from its four boats. The 40 foot Harris, *Deliverance*, carries 15 to 18 divers; the 30 foot Lindsey, *Scorpio*, carries 10 to 12 divers; and the 36 foot Striker, *Gemini* and 23 foot *Seaspray* carry six divers each. A wide variety of courses, ranging from resort to divemaster, are available, usually with one day's notice.

The main shop has sundries and scuba gear and the branch operations at hotels carry beachwear, film, hats and other items. CSA also offers snorkeling trips to Buck Island, sailboats, waterskiing, sailboarding and sportfishing.

CRUZAN DIVERS, owned by Tom Long and managed by Doug McIntyre, can take you to the seahorses at Frederiksted Pier. Doug also takes up to six divers to dive sites in the 23 foot *Cruzan Diver*. Sandwiches and sodas are offered on long trips. Cruzan Divers has hotel packages with the King Frederik Hotel and Royal Dane Hotel. He will make hotel pickups or arrange transportation if necessary. The shop can arrange for sport fishing and instruction in introductory or certification scuba, as well as instruction in water skiing and boardsailing.

DIVE EXPERIENCE offers flexible scheduling to meet the needs of divers and students, both visiting and local. Thus, owner/manager Michele Pugh will dive "anytime and day." PADI instruction, from resort to assistant instructor, is available on short notice. Boat dives for up to 16 divers are made from the *Sea-*

A sailboat finds quiet anchorage against a beautiful USVI sunset at Magens Bay.



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Frederiksted
St. Croix, USVI 00840
(809) 772-3701

Accommodations through the Royal Dane Hotel.

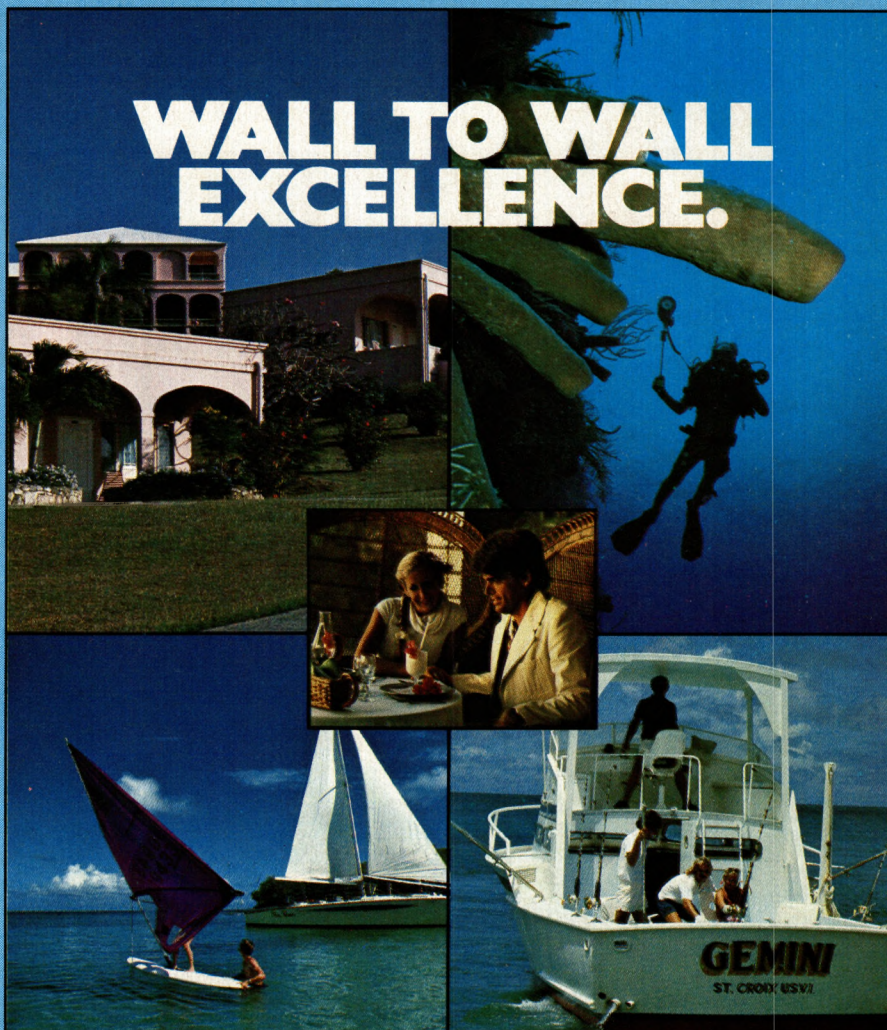
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works, a modified Chesapeake Bay trawler certified for 35 people. Lunches can be arranged. Dive Experience has dive packages with Club Comanche Hotel and Tamarind Reef Beach Club. Pugh Makes hotel pickups with her VW bus.

Owned and managed by Skip and Suzie Burch, SAILING ADVENTURES OF ST. CROIX offers guided two and four hour boat dives. The 15 foot *Ra Tender* takes two divers and a guide, while the 23 foot *Caravelle Diver* and 30 foot *After You* each take six divers plus captain and guide. Each charter is planned to fit the divers' purposes. They have a dive package with the Caravelle Hotel and use the hotel meeting room and pool for SSI instruction. Retail sales are limited to beachwear. Snorkeling and scuba gear, U/W cameras, U/W metal detectors and sailboards are available for rental. A wide variety of sailboats, from 18 to 45 feet, are also available.

SEA SHADOWS, owned by Steve Fordyce and Libby and John Wessel, specializes in personalized, full service—anytime, day or night. While they have a 20 foot Aquasport that will carry up to six divers, much of their diving is conveniently done from shore at Cane Bay with an average swim of 10 to 100 yards. They have dive packages with five hotels. The Waves of Cane Bay has kitchenettes and is a 15 minute walk from Sea Shadows' shop. Cane Bay Plantations, Cane Bay Reef Club, Anchor Inn Hotel and Chenay Bay Colony Hotel are farther away, but Sea Shadows will do pickups with their station wagon. They offer NAUI, PADI and CMAS instruction from resort courses to instructor.

V.I. DIVERS, in the Pan Am Pavilion, has daily shore dives with an average swim of about 100 yards and boat trips averaging four hours. Their 23 foot Dusky and 29 foot Chris Craft carry up to six divers each and their 46 foot custom dive boat can carry 24 divers. They specialize in photo/video charters for groups with a special interest in U/W photography. Owned by Bret Gilliam and managed by Gary Little, V.I. Divers has a dive package with the Caravelle Hotel, but will do pickups at other hotels as well.



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ST. CROIX DIVE SITES

The diving ranges from colorful, shallow reefs to plunging walls. **King's Reef**, on the western coast, has a 45 degree drop-off where you can dive from about 40 to more than 100 feet. The slope is rich with corals, seafans and gorgonians. The marine life includes large French angels, eels, lobster and turtles.

Frederiksted Pier is the seahorse capital of the Virgin Islands. The pilings of the quarter-mile pier form an undersea forest with depths to about 35 feet. Sponges, plumeworms and arrowcrabs adorn the pilings. Look closely and you will see the tiny red, yellow and orange seahorses. Look and photograph, but don't touch! These creatures are delicate.

Chub Hole, off the northwest shore, is an easy dive at about 35 feet. The bottom is sandy with rocks and corals providing shelter for arrowcrabs, hermit crabs, banded coral shrimp, eels and other creatures. A school of schoolmasters frequently cruises this reef.

North Star Wall starts at about 25 feet and plunges vertically down to 60 feet where it slopes at an 80 degree angle to hundreds of feet. This spectacular drop-off is about one mile west of Cane Bay and about 130 yards from shore.

Rustop Twist is the place to see pelagics such as blue runners, jacks, kingfish, Spanish mackerel and tuna. Diving depths range from about 50 to 100 feet.

Cane Bay Gardens is a 35 foot dive site at the top of Cane Bay Wall. Rather than the coral encrusted rocks typical of many USVI dive sites, this site has large coral heads with their undersides encrusted with bright red sponges. This is an excellent second dive after the wall.

Cane Bay Wall, only about 175 yards offshore, starts at about 50 feet and slopes down steeply to more than 130 feet. Purple seafans, tube sponges and basket sponges decorate the scene and large pelagic fish often swim by.

The Stacks is a miniature wall dropping vertically from about 35 to 75 feet. It features hard corals, seafans, red finger sponges and small basket sponges. This is an excellent training dive for beginning wall divers.

Long Reef has coral heads separated by sandy ravines and a gently sloping bottom from about 30 to 80 feet. Fish and small critters hide in the nooks and crannies of the coral heads and you will see several large basket sponges.

CONCLUSION

Our only regret is that we couldn't fully describe every fine hotel, restaurant, dive site and activity you can enjoy in the USVI as this would fill the entire magazine! For more information, write to the United States Virgin Islands Division of Tourism, P.O. Box 471269, Miami, FL 33125. Tell them that you are a diver and specify what islands you are interested in.

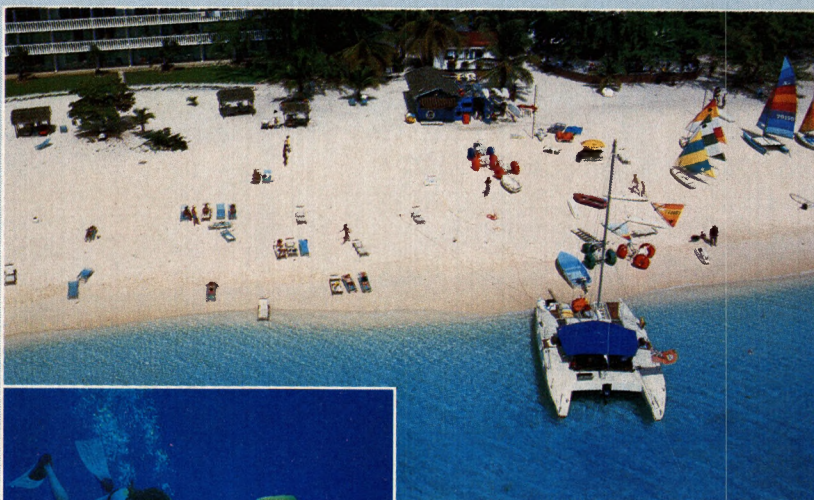
SDM travel

SECTION

Over the past ten years, Grand Cayman has become the single largest and most popular diving destination in the Caribbean. This British West Indies island has a unique combination of spectacular drop-offs, exotic marine life, crystal clear water and superb dive operators. All of these have proved an irresistible lure for the reef seeking vacationer: About 50,000 scuba divers and snorkelers visit Grand Cayman annually.

Until recently, this annual migration of divers was a summer phenomenon, fostered by offseason hotel rates, school vacation periods and good weather. Now, Holiday Inn has changed that trend by offering a very attractive and exciting winter dive vacation package known as the Super Diver. Recognizing the growing importance of the sport diving market, Holiday Inn's vice-president of marketing, Paul Robinson, has cut his prices to the bone in an effort to develop the most competitive winter dive vacation package offered in the history of Holiday Inn, Grand Cayman. Robinson is regarded as the Holiday Inn's in-house marketing genius. He invented and developed such unique programs as Scubabowl, Holiday Inn's Guaranteed Dive Package and the Bill Rogers 10K Race of Cayman.

The new Super Diver Package can be purchased in three different sizes: 1.) An eight day/seven night vacation with six days of diving; 2.) A six day/five night vacation with four days of diving; 3.) A four day/three night weekend with two days of diving. The total package cost (excluding air fare) of these three Super Diver Packages is; \$699, \$499 and \$299 respectively. Package prices include: hotel accommodations, breakfast and diving, plus a number of hotel amenities. Since many of the top beach hotels in



HOLIDAY INN'S Super Diver Package

TEXT AND PHOTOGRAPHY
BY GERI MURPHY

the Caribbean charge \$200 a night during the winter high season these package prices are a bargain.

The Holiday Inn of Grand Cayman is the original home of Bob Soto's Diving Limited, the island's largest and most successful dive operation. Bob Soto's main beach side dive shop is right on the Holiday Inn premises, 50 feet



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HOLIDAY INN

from the water's edge. Soto's six dive boats pull right up on the hotel beach so guests can board with maximum convenience and minimum hassle.

A typical Super Diver day begins with a leisurely breakfast in the Holiday Inn's Terrace Room overlooking the swimming pool. From there it is just a few short steps to the Bob Soto Dive Shop for check-in. Guests board the dive boat at 8:50 am and the boat departs from the beach at 9:00 am sharp. Grand Cayman's best dive sites are only a 15 to 20 minute ride from the Holiday Inn beach.

The morning trip consists of two tank dives with the first on one of the many well known drop-offs such as Trinity Caves, Big Tunnels, Sand Chutes or Round Rock. Getting into the water is a simple matter of walking off the front ramp of the boat. Visibility along the drop-off ranges from 90 to 150 feet.

The second dive of the morning is generally at a shallow to medium depth coral reef such as Spanish Anchor, Aquarium, Soto's Reef or the wreck of the *Oro Verde*. The dive boat returns to the Holiday Inn sometime between 12:30 and 1:00 pm thus allowing the entire afternoon for other vacation activities.

A complete watersports service known as Aqua Delights is right on Holiday Inn beach and adjacent to Bob Soto's Dive Shop. Divers and non-divers can enjoy activities ranging from jet skiing, board-sailing, aqua-cycles and sailing. The highlight of many vacations is the popular sunset cocktail/dinner sail onboard either *Gato* or *Buccaneer*.

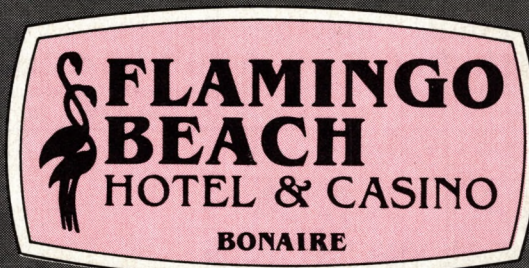
The Holiday Inn of Grand Cayman is almost a self-contained vacation village. In addition to the wide range of beach activities, the hotel offers excellent tennis courts, duty free shopping, a complete beauty shop and three cocktail bars. One of the most popular events of the day is watching the spectacular sunsets which occur in front of the Holiday Inn beach.

For more information or reservations concerning the Holiday Inn Super Diver Package, call U.S. Toll Free (800) 421-9999 or write to Super Diver, 5100 Popular Avenue, Suite 2219, Memphis, TN 38137.

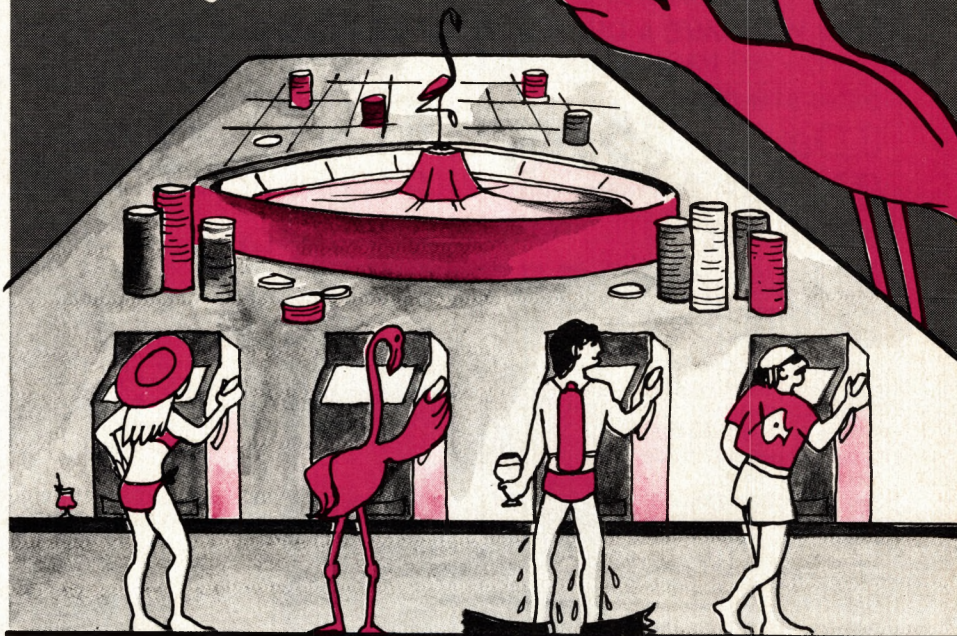
FOSTER'S SCUBA TOURS

Scuba Tours Inc. is celebrating the one year anniversary of its affiliation with Don Foster's Dive Grand Cayman Ltd. Scuba Tours Inc., along with its sister company, Enid's Travel Desk, in business since 1950, are members of the Institute of Certified Travel Counselors. They maintain an experienced staff of dive travel experts, serving dive stores, dive clubs and travel agents as well as individuals.

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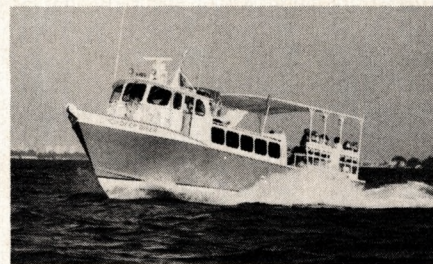
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M/V DEEP DIVER

Pisces Divers of North Miami, Florida has acquired a 50 foot custom built dive boat, the *Deep Diver*. Equipped with the latest in marine electronics, including radar, the *Deep Diver* also has a galley, head, freshwater shower, air conditioned wheelhouse and saloon. It is Coast Guard certified for 29 people but Captain Rick Smith's policy is to limit the number of passengers to about 18 to keep the boat



as comfortable as possible. Smith is a U.S. Coast Guard certified captain. He employs a full time first mate, four instructors (including himself) and two assistant instructors, two or more of whom are always onboard to ensure safety and comfort and to give each diver plenty of personal attention. In addition to diving some of the most spectacular wrecks in the U.S., the *Deep Diver* also makes two and three day Bimini trips, sleeping eight passengers and three crew. *Deep Diver* is docked at Miami Beach Marina. For more information contact Pisces Divers. ✉

CAYMAN VIDEO COURSES

Ron Kipp and the Cayman Diving Lodge now offer an U/W video course which includes working on an actual TV production. This course will be available on a regularly scheduled basis during 1985. One week courses are scheduled for February, April and June.

The courses are designed for both the beginning and advanced student. During each session students will become members of a TV crew and work on underwater locations.

The week is filled with lectures, practical experience and at least two, one tank video dives each day. Students will participate in all phases of U/W video production and post production.

The course director is film/TV producer/U/W cinematographer Eric Heidl. He has traveled the world producing TV shows and returns yearly to the Cayman Islands to work with students in the art of U/W video techniques.

Tuition includes lectures, critique and use of all necessary equipment. The course fee is in addition to the regular dive package at Cayman Diving Lodge. The course is limited to 12 students.

For more information contact Airtour Universal. ✉

NY RELICS

The September issue of SDM featured an article entitled Diving Western New York. In it the waters around Fort Niagara were described as a location where cannonballs and other military relics can be found.

Two regulations which pertain to the area should be noted: (1) The use of "artificial swimming aids" is prohibited within the boundaries of New York State Parks. (The boundaries of Fort Niagara State Park extend 1,000 feet into Lake Ontario.) (2) All New York State-owned land is protected by the State Education Law under Paragraph Four, Article Five, Title I. This law prohibits the appropriation of any object of archaeological interest without written permission of the Commissioner of Education.

The Niagara Frontier State Parks Police enforce both regulations. ❧

ROCKY MOUNTAIN DIVERS ASSOCIATION

An association to better meet the needs of scuba and skin divers in the Northern Rocky Mountain region has been formed. Winter sports enthusiasts, especially in Rocky Mountain ski areas, are frequently drawn to diving as a warm weather alternative, but their diving needs are not well met.

The newly formed club, based in Sun Valley, Idaho, sponsors diving certification courses; maintains information on Mexican and Caribbean dive packages, as well as close-to-home mountain diving opportunities; publishes a quarterly newsletter; and offers club members discounts on all club sponsored dive packages. Membership is \$10 per year.

For more information or membership applications, write to RMDA c/o Epic Expeditions, P.O. Box 209, Sun Valley, ID 83353. ❧

MARINE BIOLOGY PROGRAM

Students of biology and related fields of study who wish to move beyond the confines of the traditional campus may spend an exciting year of field study in three very different locations: the Oregon coast, Jamaica and coastal New England. The East/West Marine Biology Program, a joint effort by Northeastern University and the University of Oregon, focuses on topics in West Coast, tropical and East Coast marine biology and includes scuba diving in all three locations. A unique opportunity for students to live and work in their environments of study, the program is open to both undergraduate and graduate students.

For further information contact the College of Arts and Sciences, 400 Meserve Hall, Northeastern University, 360 Huntington Ave., Boston, MA 02115. ❧

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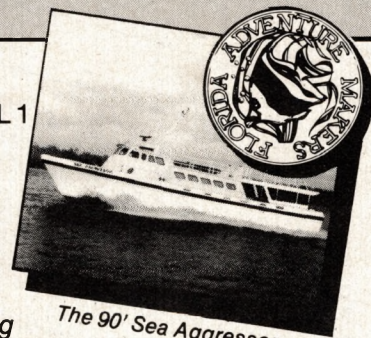
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CAYMAN TREASURE HUNT

More than 123 divers searched the ocean floor off Grand Cayman's Seven Mile Beach for 300 coins in the Underwater Treasure Hunt, one of the events that



marked Pirates Week, the islands' traditional October's end festival. Some of the coins were marked, thus earning their finders various prizes.

CAYOS COCHINOS

Los Cayos Cochinos, in the Bay Islands of Honduras, has 14 major named dive spots with many more left to find. More than 300 species of plants and animals inhabit the crystal clear western Caribbean waters of the area. The remote island has only one diving resort, Plantation Beach, which caters to divers looking for the ultimate underwater experience.

For an unusual diving experience, there is the Cochinos Banks. This reef area is completely separated from the main reefs and islands by a mile or more of deep, open water. Gigantic soft corals dominate the central portion of the bank and angelfish are common.

SEE & SEA PHILIPPINE CRUISE

See & Sea Travel of San Francisco is offering a 12 day dive cruise in the Philippines. The program concentrates on ten



days of diving the Philippine reefs from the 120 foot *Tristar*. An optional Manila hotel/tour package is also available.

SEA SAFARIS/FIJI

Sea Safaris Travel, Inc. of Manhattan Beach, CA is offering new Fiji diving programs with resort packages in Taveuni, Toberua, Qamea and Suva. There is also a package aboard a live-aboard boat from Suva to Bega Lagoon and Astrolabe Reef.

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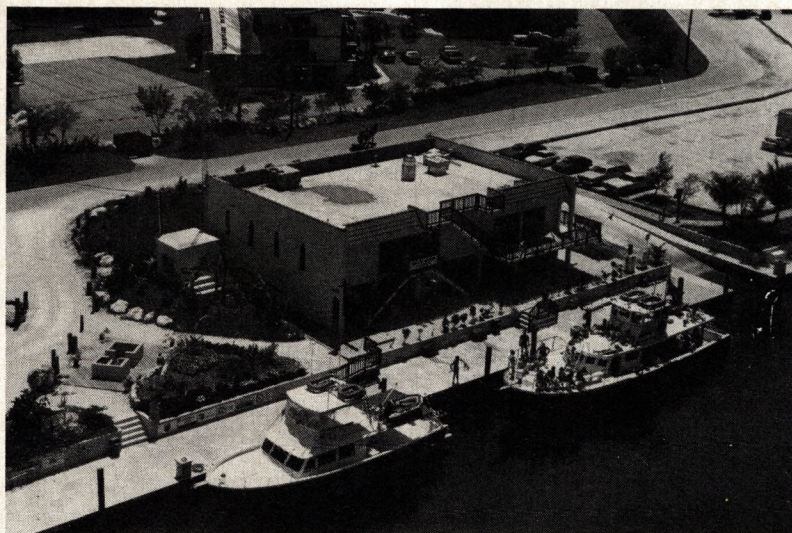


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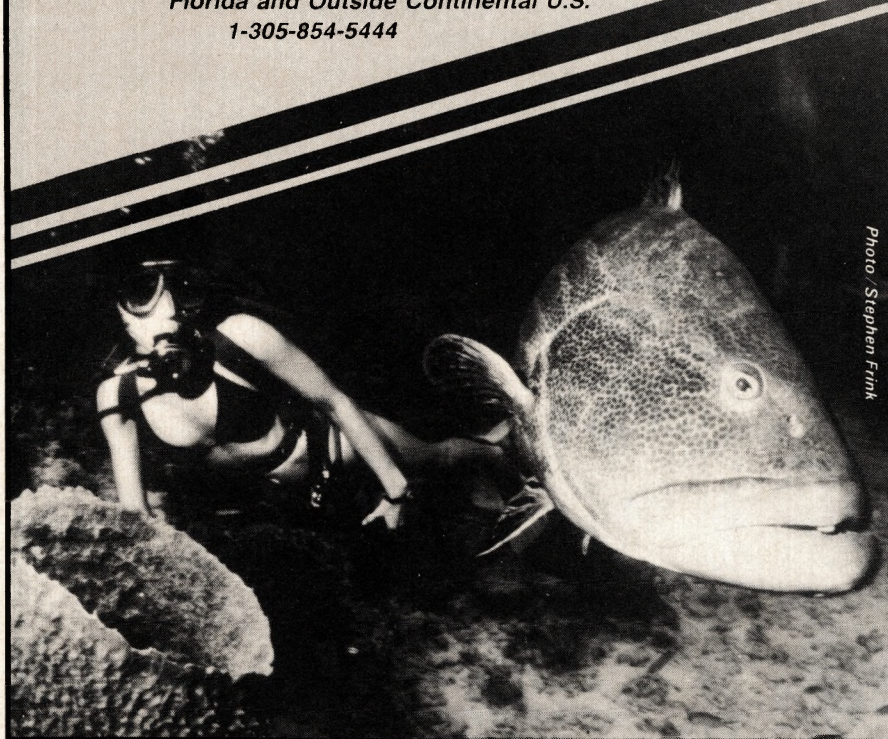


Photo: Stephen Frink

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CAYMAN DIVING LODGE

The Cayman Diving Lodge, under the ownership of Ron Kipp, has recently reopened. Additionally, the Lodge has begun an extensive series of remodeling projects. Pat Scharr-Mavec has been selected as vice president and general manager of the facility.

The virgin diving of the east end will now be supplemented by shore diving with Bob Soto's Scuba Centre. West wall dives and wreck dives on the *Oro Verde* will be made in conjunction with Bob Soto's Lobster Pot Headquarters.

Remote east wall diving will continue as the specialty of Cayman Diving Lodge. The lodge will also continue to specialize in small dive groups.

For more information contact Airtour Universal. 🐠

BONAIRE WRECK

Bonaire has had a serendipitous addition to its many attractions for divers. It's a sunken 238 foot freighter, the *Hilma Hooker*, which foundered 100 yards offshore. Its port rail is only 50 feet from the surface in a calm, easily accessible area abounding in fish and other marine life. Built in Holland in 1951, the *Hilma Hooker* now presents no hazard to shipping, but is ideally situated for divers near the southwest coast of the island. It settled in a narrow sand channel between two beautiful reefs.

The vessel, flying a Columbian flag, was enroute to another destination when it developed problems and managed to make port at Bonaire. On a tip, the island authorities searched for and found a large quantity of marijuana aboard. When the confiscated freighter began to sink, tugs towed it from dockside so it would not obstruct navigation.

Snorkelers can survey the wreck from the surface. For divers, wreck exploration is an add-on to the list of more than 40 underwater sites which have been identified and fitted with special mooring facilities so that boat anchors will not destroy the delicate coral formations beneath the surface. 🐠

ISLAMORADA GARDEN EELS

Garden eels, thought to inhabit deeper waters of the Caribbean, have been discovered in the U.S. just offshore Islamorada in the Florida Keys. Capts. Joanie Follmer and Ken Wright discovered the eels while diving in 100 feet of water on a wreck near No Name Reef.

Divers interested in visiting Islamorada's Garden of Eels can arrange to do so by contacting Lady Cyana Divers. 🐠

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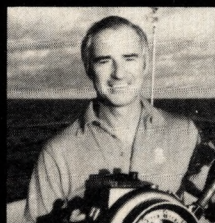
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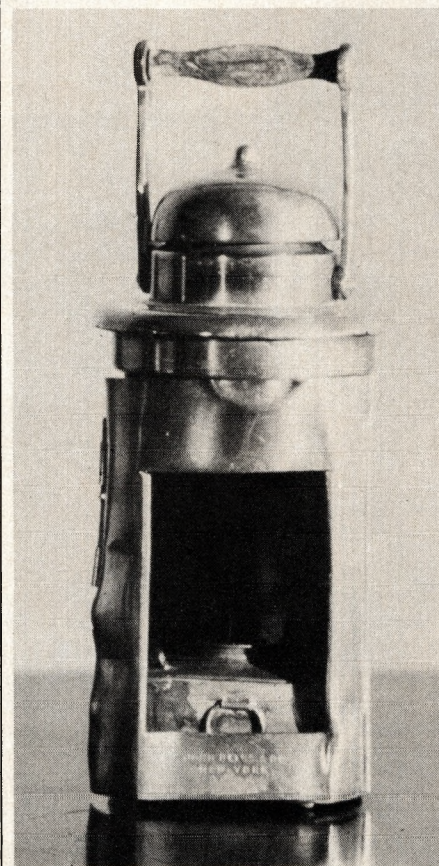
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Poor Man's Gold: BRASS

TEXT AND PHOTOGRAPHY
BY RICHARD TRIEBE

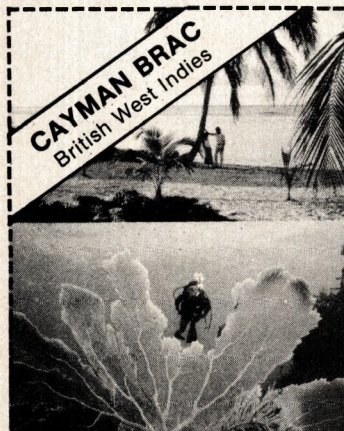
The incessant roar of the motor is silenced as the boat reaches its long awaited position over the wreck. It's a beautiful day for a dive. As you roll off the gunnel of the dive boat your world is suddenly transformed into white water and bubbles. You find the anchor line and drift downward toward the silent, twilight world where all you hear is the mechanical sound of your regulator. Soon you see objects take form and clarify as you near the bottom. You are amazed as you



swim over the largest junkpile you have ever seen.

Back on board after the dive, you wonder why people even bother to get wet on this wreck. As you dry off you watch returning divers heft their overloaded goodie bags on the boat deck. They talk excitedly and gesture wildly as they show their finds. "Must be nitrogen narcosis," you mumble to yourself as you turn away.

These divers are excited about poor man's gold, more commonly known as brass. Brass, when properly cleaned, shined and displayed, can be as precious as gold or silver, especially to the finder.



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Photo/Greg Brown

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Diving Operations, Commercial Fishing, Electronics, Robotics, Computer, Marine, Diesel, Oceanographic, Photographic, and Marine Propulsion Technology. We have equally exciting Bachelor degree programs in Aquaculture, Robotics, Environmental, Oceanographic, Computer, Photographic, Medical, and Applied Technology. Call us or write us and let us know if you're interested.



POOR MAN'S GOLD

There is an art to finding, cleaning, polishing and displaying your treasures. First you need a find. So let's go back to the junkpile. A location such as this has great potential. Some fanning of the sand in strategic locations can yield very satisfying results. But don't miss the obvious! Just because hundreds of divers have passed something by, don't assume it's no good. Examine it.

Let's think what the properties of brass are. It's a heavy metal, yellow in color and nonmagnetic. However, when brass has been submerged for a time it can be almost any color. Usually it is gray, brown or black. You can scratch the suspected metal with your knife to see if it's yellow. It very rarely is. Remember that murky water filters out yellow at 20 feet and clear water at 45. I have very seldom seen yellow brass in the water. So don't be fooled by the color. If you think it may be brass, bring it up. By the way, you can usually tell by the shape of the object. Since it is nonmagnetic you can bring a small magnet down with you. This is not a positive test, however, as only steel and iron will be attracted. There are many metals that will be unaffected but this will help you to narrow down the field. Be sure to use a magnet that's strong enough. There may be quite an accumulation of scale or lime that needs to be penetrated. Also, a large piece of scrap can have a smaller piece of desirable brass cemented to it by calcification. Again, if you're not sure, bring it up. Back on the boat or at home you can sort through your treasures and find the keepers and throw out the trash.

Now that we have the raw material we can get started cleaning. I first prepare a bath of muriatic acid to remove the calcified lime deposits. A strong note of caution must be included here. Please use extreme care when handling this acid. It is a poison and is very caustic. Never use it inside an enclosed area, or mix it with any solution other than water. Always wear rubber gloves and goggles. Never breathe the vapors and never get it on any surface you do not want damaged. Remember it is very strong!

Why muriatic acid? It's very simple. It is easily obtained at most hardware stores and is very effective in this application. By the way, brass will not be harmed but most other metals will, so be careful. First, prepare a bath of 50 percent acid and 50 percent water in a glass bowl. Have another glass bowl alongside, filled with water. Using plastic fishing line, tie the object securely for dipping. Immerse it for 15 seconds, then take it out and rinse it off. See what progress has been made. Look for signs of weakening in the structure as objects that are plated or made from non-brass parts can be ruined. In this case you may want to use a

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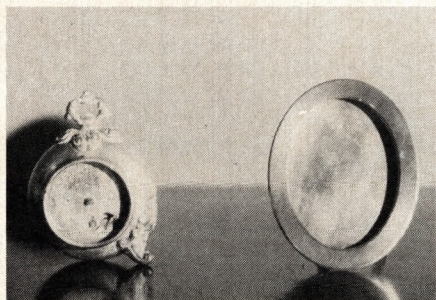
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different cleaning process. If the article is unaffected structurally, but cleaner, put it back in the solution. Leave it in until most of the bubbling has stopped: One to ten minutes should be sufficient. Periodically check to see if the desired effect has been reached. If not, rinse the object off and repeat.

When you've gotten the object as clean as you can, closely examine it for any unsightly scratches or gouges. If you do find some deep scratches you can use sandpaper or emery cloth in varying degrees of coarseness. Start with a coarse grit and steadily decrease the grit as the scratch is removed. Remember, brass is soft and any minor scratches will probably come out when you buff. Steel-wool can be effective where the buffing wheel cannot reach.

Now you can perform real magic and make shiny gold from old tarnished brass. A bench grinder is the preferred method of buffing. Use goggles, gloves and protective clothing so you don't get buffing compound where it doesn't belong. Be careful when you buff as brass will get hot. Make sure you have a good firm grip. Sometimes I use one hand and a needle nose pliers in the other. This method works pretty well for me, espe-

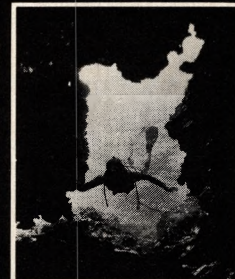


cially on small objects. Any smudges left from the buffing process can be wiped off with a smooth dry cloth. When you reach a desired finish you may preserve that shine by using a light coat of urethane from an aerosol can. Don't spoil your work by putting on a heavy coat. A light one will do the job and can be very difficult to detect.

Now you are finished cleaning and buffing. Let your imagination run wild and be creative. I have a friend who makes belt buckles from brass pipe. He cuts the pipe lengthwise and then flattens it. He then engraves a nautical scene on the face and solders clips on the back. These make excellent gifts. Another friend has a solid brass boiler gauge from a wreck. He spent many hours buffing it, put a battery operated clock movement in it and then mounted it on a piece of wood from a wreck. It really looks great.

Some pieces lend themselves quite readily to table or floor lamps, such as brass railings. If you have several small pieces lying about collecting dust, there are many things that can be done with

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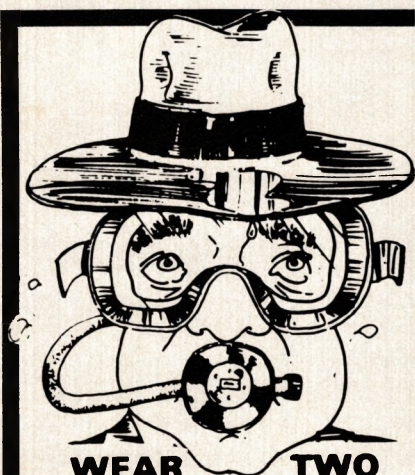
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them. If you know how to weld and have use of the equipment you can create a real piece of art by welding the pieces together. Or you can do as I have done and make a picture from the pieces. I'm sure you have lots of material or can get some. Here are the directions for making your own picture:

Materials required: one piece of masonite pegboard, one-eighth inch thick; natural canvas; picture frame; plumber's bailing wire; staples; picture hanging wire; screw eyes for hanging.

Take the pegboard and cut a square the desired size. Since you can make the picture any size you want, take the objects you would like to include and arrange them in a pleasing pattern. For example, I made mine 9 by 12 inches and included nine artifacts. Six were brass and I polished three. The others I cleaned only with soap and water as I thought the natural patina looked best. The three I polished were used to add a splash of color to the picture. The remaining three were iron and left in their natural state with a light coating of urethane.

When you arrive at a pattern, place your objects on the board and trace their outlines in pencil. I used plumber's bailing wire to tie the objects to the board. Decide where a wire should be and if a hole isn't near enough, mark it in pencil and drill any holes that are necessary. When you're through, mark in pencil any holes to receive wire.

Cut the canvas about an inch bigger than you need and place it on the front of the board. Staple one side as close as possible to the edge and then stretch it tightly to the opposite side so all the wrinkles come out. Repeat for the other two sides. Mount your board in the picture frame with small nails. I found it easier to purchase the frame rather than making it myself. For ten dollars you can get a pre-stained and varnished frame that fits well at the corners. I preferred a heavy rustic frame to complement the artifacts.

Take a four inch length of bailing wire and place it through the canvas. To locate the hole I looked at the back and placed the frame between myself and the light. The wire will require some force to penetrate the canvas, so don't be shy. If it doesn't go through, check to make sure there is a hole in the board underneath the wire. When you have gotten both sides through and secured the wire around your object, pull tight and twist. Bend the extra wire as nearly flush as possible with the back. Now clip the excess wire off. Repeat for all the artifacts. Place wire on the back of the frame and you're all set to hang your art.

The next time you are disappointed by a dive, keep an open mind. Check the bottom carefully. You may find something obscure and create a real treasure. >

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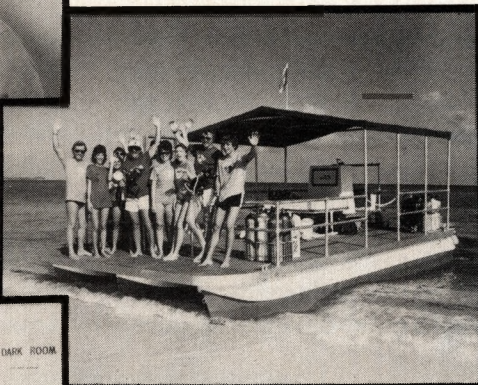
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Have Your LOBSTER And Eat It Too

TEXT AND PHOTOGRAPHY
BY LADA SIMEK

Lobsters and crabs are beautiful and complex creatures. If you ever catch a really nice one, you may be undecided between cooking it and having it mounted. But with a bit of care you can eat your lobster and have its lifelike exoskeleton hanging on your wall. The cost is about \$20 for materials and some hours of pleasant work spread over several weeks. The job would be very expensive if done by a taxidermist because of the time required to assemble the large number of pieces. My first specimen took over 30 hours, most of it spent experimenting with methods and materials. The following set of directions will give good results even the first time and is easily adaptable to the Florida/California lobster as well as crabs.

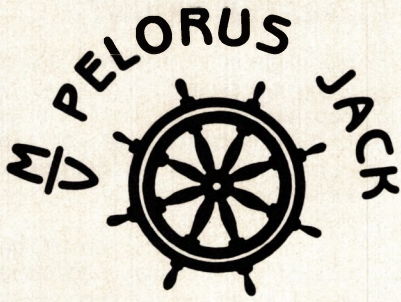
The first requirement for preserving an entire lobster is that you *must* have two of them, one to work on and the other one purely as a model to copy. Don't boil your model—you will need the original colors to copy when you paint number one. Stick the model in the freezer every time you are done with it. This is very important. I also would recommend not eating the model for obvious reasons.

Cook and eat the lobster you want to mount with minimal damage to the shell—which will be dried. The tail is going to be cemented to the body shell and these are going to be placed over an artificial body made of crumpled newspapers. This body will have wires protruding from it. Each wire will be run through the four segments of a leg and fastened to a plywood base. Attaching the claws and antennae, followed by painting, completes the project. Sound simple? Basically it is.

PREPARING THE SHELL

After cooking, break the tail off the body. Break off the fins at the end of the tail. Insert a finger in that end and push the meat out in one piece. Try to remove bits of meat from the fins. Rinse, and set everything aside to dry, but do not let the tail curl. Tape it down or insert something inside so that it dries in a nearly straight, lifelike position.

Break off the claws and antennae at the body. Insert a thumb in the body cavity and rip out all the legs and body parts. Rinse the shell out. The trick is to dry everything before it decays. A simple, cheap and effective preservative is borax (supermarket) and alum (drug store). Rub some of this mixture on any spot you sus-



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LOBSTER MOUNT

pect might smell, both now and anytime during this project. Regardless, you will probably get a little smell for a few days but it should be tolerable. For crabs, split the body into top and bottom parts. Clean out all the meat you can, then preserve and dry the shell.

On a New England lobster, save the base of the antennae and discard the rest. (They shrivel and become too brittle to work with.) They can be easily duplicated. On a clawless lobster you must save them, at least the thick parts. Get out all the meat you can. It is OK to cut them in half with a hacksaw—they are easy to glue together.

At this point you must start keeping records of the parts. Either number them with a pencil or set them out anatomically. Each joint hinges on two points with a membrane between them. Slit all the membranes, bend the joints at right angles and push the meat out with a chopstick. If the joints come apart it is OK. Rinse these and dry. The claws can be emptied by breaking off the moveable part and working the meat out through the wrist opening using a fine blade knife and a chopstick pushing through the other end. If you are having difficulty doing this you may want to enlarge the wrist opening by breaking a piece of the shell off with pliers. Save the piece, stuff the claw with papers and cement the piece back in place later.

MAKING THE ARTIFICIAL BODY

Soak newspapers in some white glue diluted with water. Make them into a sausage shape which will barely fit inside the body shell. Wrap it with string to keep its shape and let it dry one week.

Obtain eight pieces of wire, (galvanized) about 16 gauge. Cut them at least twice the length of the legs and sharpen both ends. After the body is dry, push one end through the body where you decide the first leg will be attached. Bend the protruding point and push it back into



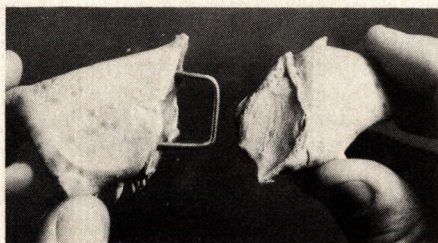
the body, making it like a large staple. Repeat this with the other leg wires, referring to the model for spacing. For a clawed lobster or crabs with large claws, attach two more wires for the claws, but use heavier and shorter wire, coathanger size. Spread the leg wires like lobster legs on a plywood base and drill holes where they touch.

PUTTING IT TOGETHER

From an automotive supply store you can get a can of body filler. This creamy paste, when mixed with the catalyst, sets rock hard in about five minutes. It is indispensable to this project.

Tape the body and tail down on a table in a natural position but upside down so you can work inside. Place two small globs of catalyzed filler on each piece and embed a pre-bent finishing nail so as to bridge the joint between them. When the filler hardens the two pieces will be permanently attached.

Starting with the center tail fin, get a little catalyzed filler inside and embed a one inch piece of wire letting half of it protrude. Let it harden. Get some filler inside the tail and push the protruding wire inside so that when the filler hardens the attachment will be made. This is also how to attach the claws to the wrist joints or segments, only instead of a single wire



use a longer piece bent into a U so that there are two wires connecting each joint. The claws are heavier and two wires prevent twisting.

The claw is cemented together and attached to the wrists, again using two nails embedded in filler at both ends.

Run the leg wires from the artificial body through the plywood for support. Place some filler on the back of the body and slide the shell over it, making sure that the body fills the front part of the shell. Use more filler to seal any openings along the bottom of the shell. Immediately attach the first leg joint. Run the wire through the first leg segment and cement it to the body using filler.

Set the lobster or crab on its back. Run the wires through the leg segments all the way out to the ends. Bend the wires as you do this, using needlenose pliers to form angular, lifelike legs. Compare them to the model.

Place the lobster on the plywood and run the wires through the pre-drilled holes for support. Next you will need some hot-melt glue. This comes in sticks that are pushed through an electrically heated gun which melts them. The liquefied glue solidifies almost instantly but retains some flexibility, which is desirable. Gun and glue are available in most hardware stores for about \$13. Squirt some of the melted glue in each leg joint, sealing them and attaching them to the wire at the same time.

Fill the moveable part of the animal's claw with filler and embed a pre-bent nail or wire. Get some filler inside the claw

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U.S.S. COLUMBINE

(Continued from Page 56)

terns were found. Later that day, after digging through 18 inches of sand, I discovered the answer to a mystery. My fingers grasped a heavy cylindrical object four inches in diameter. After some effort, the bar released its grip. It was a 20 pound parrett shell. Nearby, my companion found another.

Captain Dickson prepared a detailed list of arms and munitions captured. No shells for the parrett rifles appear in his report. Yet there was no way Union gunners could have expended all their shells in 45 minutes. It was evident that naval officers ordered all munitions thrown overboard prior to surrender. During subsequent dives many parrett shells were located from scattered points throughout the site. I also found an unexploded 12 pound case shot—fired from Dickson's Napoleons.

We visited the area frequently over the next two years. Some of the best finds were made months after the initial dive using a prop blaster powered by a 10 horsepower engine. Someone commented that the ghosts of those who participated in this historic drama must place objects in the sand between dives. One diver found a complete leather belt including brass buckle, clasp and a cartridge pouch containing 38 rounds. A brass porthole was found intact with the glass totally black, but in place. Numerous white firebricks stamped with the address of a New York manufacturer soon filled our boats. Nautical objects from the vessel were always interesting as the *Columbine* was actually a pre-Civil War ship built in 1850. Another diver found portions of a sighting device from one of the cannons. Occasionally a fish and game officer came by during our visits but did not object to our diving.

Perhaps the most valuable find was a box containing 100 rare waterproof fuses for the parrett shells. These were valued at \$40 each and quickly snapped up by collectors. Objects from the *Columbine* dominated artifact contests held by a Tampa dive club for three years.

Unfortunately, some members of our group did not adhere to the code of secrecy agreed upon after the initial dive. Divers from everywhere visited the site and controlled exploration was lost. The state had no structured program or communications with sport divers during the early '70s and was preoccupied with chasing salvors from treasure wrecks in the Keys. How different things would have been if our group could have worked closely with a state underwater archaeologist.

Today, Florida is seeking to work with the diving community and some day artifacts from the *Columbine* will be on display for public enjoyment. 



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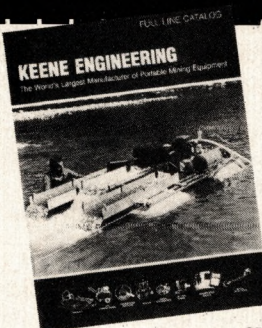
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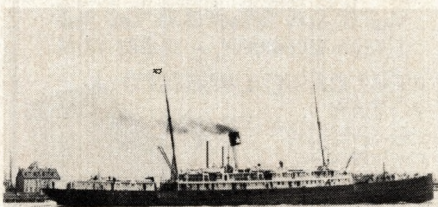
TEXT AND PHOTOGRAPHY
BY ROD FARB

Traveling to the East Coast of the United States from the West in the past was an arduous journey for most. But, one of the most pleasant ways to travel coast to coast, for those who could afford it, was by rail to New Orleans and steamship from New Orleans to New York. Southern Pacific Railroad Company provided the trip via its fine rail coach service from San Francisco and other western cities to New Orleans and from there to New York on one of the five high-class ocean passenger steamers. One of these vessels was the 4,828 ton, 406 foot long, steel screw steamer, *Proteus*. She was named after one of the mystic society organizations which take part in Mardi Gras in New Orleans. Proteus, in mythology was the son of Neptune and Phoenix or Oceanus and Tethys. The *Proteus* was built for Cromwell Steamship Company at the Newport News Shipbuilding and Dry Dock Company, Newport News, Virginia and launched on December 16, 1899. Cromwell Steamship Company was purchased by Southern Pacific Railroad in July of 1902 as the railroad sought to offer first class sea service for West Coast travelers. Her identical sister ship, *Comus*, also a Southern Pacific New Orleans/New York passenger steamer, was launched a month before the *Proteus* and the two were the largest coastal passenger vessels of their day. Newspapers reported them to be "models of design and build for ocean steamers, and... without peer in comfort and elegance."

These vessels were considered to be the safest of their time for modern travelers. Reviews and advertisements of the day proclaimed the *Proteus* and *Comus* virtually unsinkable and endowed with all the comforts of a private yacht. The charge for these accommodations was slightly higher than that for a first-class hotel on land—\$35 one way, \$60 round-trip, first class; \$27.50 either way, second class; and \$20 steerage. The ships were rated "A-1 for 20 years" in the American Bureau of Shipping's *Record of America and Foreign Shipping*, the top rating and commanded only by those vessels which met the rigorous requirements of the ABS. The *Proteus* and *Comus*, because of their great comfort, spacious accommodations, large size, strength and seaworthiness, were considered the finest coastal passenger ships sailing from New York and on many points were considered better than even the latest of the transatlantic liners.

The *Proteus* had 46 staterooms, accommodating 78 first class passengers.

ers, 30 staterooms for 50 second class passengers and 108 berths in steerage. The dining saloons were large, elegant apartments equipped with electric fans, electric lights, comfortable chairs and



lounges with enough seating for the full company of passengers at one sitting. The main dining room accommodated 56 passengers with great comfort. The cabins, staterooms and saloons were fitted with round or square air ports—the round portholes being about two feet in diameter and the rectangular ones much larger. All contained heavy glass plate lights. The rectangular ports had small stained glass panels over them and were said to give stateroom and saloons a regal effect. Her deck space was large (12.5 laps of the deck equals one mile) and there were many promenades for first and second class passengers.

The *Proteus* was powered by a vertical triple expansion engine having cylinders 32, 52 and 84 inches in diameter and a 54 inch piston stroke. Steam was supplied by three double-ended boilers 13' 10" in diameter and 20' 6" long, which provided power to turn her large propeller—18 feet in diameter. The *Proteus* could cruise at 14-16 knots and made the 2,000 mile trip between New York and New Orleans carrying passengers and freight in five days. These trips were not always uneventful and one particularly memorable trip occurred early in 1916. On January 27, 1916, carrying 95 passengers and crew, the *Proteus* left her pier in New Orleans at noon bound for New York under dreary skies. Within two hours the ship was enveloped in a heavy fog. The visibility was extremely poor as Captain John Nelson commanded the ship at reduced speed down the Mississippi River toward the Gulf of Mexico. As the *Proteus* made her way through the fog, Captain Nelson was unaware of another ship ahead of him, also outward bound but moving more slowly than the *Proteus*. Captain Peterson of the oil tanker *Brabant* was also unaware of the approaching *Proteus* as he ordered the ship slowed even more as the fog became thicker. Without warning, the *Proteus* rammed the stern of the *Brabant*, gouging a large hole above the waterline. Captain Nelson ordered the *Proteus* stopped and, finding she was undamaged and the *Brabant* safely afloat, continued out to sea and onto New York. The *Brabant* was towed by tug back to New Orleans for repairs. No one was injured in the collision.

Nelson was soon replaced as skipper of the *Proteus* by Captain H.C. Boyd. Boyd had been in charge of the steamer

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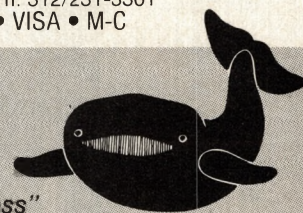
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On August 14, 1918, Captain Boyd directed the *Proteus*, carrying 75 passengers and crew, away from the Southern Pacific dock at the head of St. Louis Street in New Orleans. Around 3:00 pm August 17 the *Proteus* was off Charleston, South Carolina, on her way toward Diamond Shoals Lightship off Hatteras, which would take her until 4:00 am, Sun-



day the 18th, to reach. Fog provided poor visibility on this leg of the trip and Boyd ordered the *Proteus'* speed cut from 15 knots to 12 as conditions became worse. About 2:00 am, Sunday morning, about 34 miles southwest of Diamond Shoal Lightship, unaware that a Standard Oil tanker, the S.S. *Cushing*, was on a collision course with them, the *Proteus* proceeded cautiously toward the edge of the treacherous shoals. Without warning the *Cushing* appeared out of the fog and collided with the *Proteus* amidships, creating a gaping hole beneath her waterline. A fireman, in a moment of panic, leaped overboard moments after the collision and drowned. For the second time in as many years Captain Boyd was forced to give the order to abandon his ship. An orderly evacuation of the *Proteus* was accomplished and within an hour all were rescued by the undamaged *Cushing*. The only fatality in the collision was that of the drowned fireman. Six hours later on August 19, 1918, 25 miles south of Hatteras Inlet, the *Proteus* sank to the bottom—125 feet beneath the surface. Southern Pacific had the *Proteus* and cargo insured for \$600,000, a figure hotly contested by the cargo owners. A lower court originally set the value of the *Proteus* at \$725,000. On appeal, the Second Circuit Court of Appeals had the value increased to \$1,225,000, substantially increasing the sum of money to be paid the cargo owners by Southern Pacific.

The *Proteus* lies 20 miles from Ocracoke Inlet on a heading of 147 degrees and 25.5 miles from Hatteras Inlet on a heading of 174 degrees. Several boats from the Morehead City-Beaufort area

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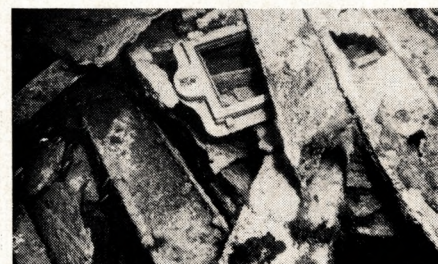
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PROTEUS

visit the wreck. The *Olympus I*, *Sea Wife IV* and *Salt Shaker IV* make the six hour trip out of Beaufort Inlet and Discovery Dive Shop's boat, *Outrageous III*, can make the trip in three hours or so, but must have a nice day, weatherwise, to do so. Al Wadsworth on the *Mary Catherine* takes nine hours to travel up to the *Proteus*; however, Wadsworth, as well as Olympus Dive charters frequently move their boats up to Ocracoke if they can get several days of charters to the *Proteus* or other nearby wrecks. Captain Art LePage operates the *November Gale* out of Wanchese and Hatteras and carries divers to the *Proteus* out of Hatteras Inlet. Art runs Outer Banks Diver Shop in Wanchese and visits a variety of wrecks in the Hatteras/Ocracoke area. He is the best captain to charter if you want to see many different wrecks in the Hatteras/Ocracoke or Oregon Inlet areas. The *November Gale* and *Olympus I* are austere-class dive boats, while the *Sea Wife IV* and *Salt Shaker IV* offer more luxurious accommodations. The *Outrageous III* is the smallest (30 feet) but fastest of the boats running up to the *Proteus*.

The *Proteus* and its cargo now lie scattered across the bottom of Hatteras—her stern section towering 25 feet or so above the wreckage. A large brass wheel attached to a long shaft may be seen on



the stern deck which is at 45 degrees to the bottom. The portion of the stern remaining uncollapsed is a small section, perhaps only 30 to 40 feet long, containing the round aft wheelhouse and includes the deadend of the stern. The brass wheel and shaft probably were part of the ship's rudder steering device which included a Williamson steering engine. Partially buried in the sand is the four blade propeller, nearly 18 feet in diameter, so large you may miss it at first, mistaking it for a large piece of bulkhead. Two of the four blades are completely buried in the sand. Moving forward along the starboard side of the wreck, near the stern relief, approaches 10-15 feet off the bottom and bulkheads and iron beams lie everywhere. The wreck lies 15-20 degrees on its port side and much of that side is buried in the sand.

All the large relief is along the starboard side, where, astern amidships, it rises to 25-30 feet off the sand. The ves-

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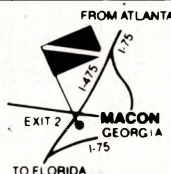
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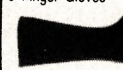
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PROTEUS

sel's three huge boilers and slightly smaller condenser tower above the wreckage near the keel, slightly astern amidships. The debris on the bottom between the starboard side and the keel comprises 60-70 percent of the type of wreckage to be seen on the site. This area is covered with large beams and twisted steel lying in a jumbled fashion amid the ship's machinery, forming clusters of small "caverns." Collapsed and disintegrating after nearly 70 years under the sea, the amidships portion of wreckage contains much more of the ship's machinery, portholes (round and rectangular) and other large and small remnants spilled across the bottom. The boilers, condenser and engine provide the greatest relief in the midsection of the wreck and compressors, generators and winches may be seen throughout the wreckage. The boilers are the largest I have ever seen underwater. Toward the bow the amount of wreck debris gradually diminishes to the point where patches of sand may be seen between large pieces of the wreckage. Not much remains of the bow but around that section may be found one of the two large three ton anchors with one fluke pointing up and the other buried in the sand, a porthole stuck firmly edgewise into the sand and the large SEE freight hatches, made in parts, which fold up and lie on the deck. The cargo hoisting engine which manipulated these freight hatches is nearby. Buried amidships beneath tons of twisted iron is the china and silverware required for over 200 passengers and many other brass artifacts which are the remains of this once-elegant vessel. Tropical marine life abounds. Beautiful soft corals, seaweeds and sponges grow on every piece of metal. Angelfish, moray eels, sea turtles, sea cucumbers, blennies, butterflyfish, sea urchins, squirrelfish and slipper lobsters may be seen. There is one group of interesting large sea creatures that seem to be attracted to this particular wreck: On seven of eight dives I have made on the *Proteus*, I have seen sharks. I have seen only sand tigers, ranging from four feet to eight feet and have seen them from May through October. Other divers have reported similar sightings on the *Proteus*, but the sharks are only curious and have never caused any problems. Many portholes, round and rectangular, have been recovered from the wreck and the stained-glass portion of the large rectangular windows gloriously enhances an already beautiful brass artifact. Visibility, in my experience, has ranged from 40 to 150 feet and water temperature ranges from 75-85°F during the summer. Under clear tropical conditions the wreck is spectacular and rates in the top five for divers off North Carolina.

Ft. Wetherill



BY ERIC AND
CATHERINE SCHWARZ

Approximately two miles across the bay from Newport, Fort Wetherill is on the southeastern side of Conanicut Island, Rhode Island. Fort Wetherill State Park is a wonderful place to explore, picnic and, most importantly, scuba dive.

Originally called Fort Dumping by the colonists who built her in 1776, Fort Wetherill was one of five forts constructed to guard the entrances to Narragansett Bay. The fort was renamed in 1900 in honor of Captain Alexander Wetherill. It sits atop 100 foot high granite cliffs which overlook the bay's eastern channel, with a commanding view of the sea to the south and Point Judith to the southwest.

Fort Wetherill and the other four forts in the area came to be known as Endicott Batteries, after Secretary of War William Endicott, who was charged by Congress in 1885 to report on the status of U.S. coastal and harbor defenses. These batteries were designed for two to three large guns. Fort Wetherill had three, six



inch diameter guns with an effective range of nine miles. Each gun was mounted on a separate platform, protected on three sides by concrete walls 15-20 feet thick. The walls were then protected with 40 feet of sand which was then covered with earth and seeded to blend in with the surrounding terrain. When fully operational, Fort Wetherill had a complement of 123 men. In addition to the big guns, there were two .30 and .50 caliber machine guns and two 40 mm anti-aircraft guns.

While the guns and threat of imminent attack no longer exist, the shore diving here is at its finest. Two coves adjacent to one of the many parking areas hold many underwater delights to entice divers. Access to the water is accomplished by leisurely walking down the boat launching ramp to the west cove or for

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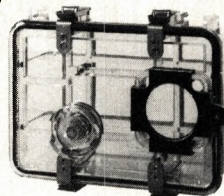
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FT. WETHERILL

the more sure-footed, hiking down a small hill to enter the east cove. It should be noted that a divers flag is required at all times. And, lobsters can only be taken by licensed Rhode Island residents.

While diving is possible year-round, the water is on the cool side until the end of May. The ecosystem of Fort Wetherill varies with the changing seasons. With the onset of autumn's shorter days and cooling temperatures, most divers are inclined to pack away their gear for the season. Yet this is when the underwater world of Fort Wetherill comes to life and the water has warmed to 64°F.

This is our favorite time to take advantage of all Fort Wetherill has to offer. This brings to mind a dive last October when we witnessed flocks of seagulls diving into the surf, pursuing anchovies that were literally jumping out of the water. Once we were under the surface, the reason for this became apparent. Thousands of snappers were feeding on the anchovies, driving them up to the surface to the de-



light of the birds. In the midst of all this, a plethora of comb jellies glowed with phosphorescent rainbows, dazzling our eyes. Frightened by our presence, Atlantic rock crabs scurried under the protective cover of the abundant plant life. Another huge school of silvery baitfish engulfed us as we snorkeled out to our favorite drop-off some 200 yards away. With so much activity so close to shore it was difficult to save enough film for the rest of the dive.

Upon arriving at our destination we submerged and leisurely descended over a kelp forest, the inhabitants of which included the ever present bergalls and a pair of blowfish. Enormous blackfish cautiously stayed just at the edge of our visibility some 30 feet away. Continuing our descent to approximately 35 feet we arrived at our objective—legions of pink, white and marbled frilled anemones that carpeted a wall that can be explored to deeper than 85 feet. These anemones range in size from macro to family portraits only a 15 mm lens can handle. Aside from the anemones there are many

other attractions: small stalks of red soft coral; white coral polyps which dot the area like stars in a distant galaxy; yellow encrusting sponges; hydroids; red and orange starfish that add brilliant dashes of color; and the occasional, but extremely rare, nudibranch, giving a touch of spectacle to the dive.

In all our diving experience from New Jersey to Maine, we have never seen such huge concentrations of life in such a beautiful setting. Best of all, Fort Wetherill is only one of many dive sites a short distance from Ocean State Scuba (17 Narragansett Ave., Jamestown, Rhode Island). Ocean State is a full service dive store in the center of town. It is open seven days a week.

There are many advantages to Fort Wetherill as a dive destination. It is easily accessible from a variety of states in the northeast. It offers a wide range of diving opportunities to both the novice and experienced diver. Since Fort Wetherill is a state park, everyone can be assured of ample parking, clean restrooms and well maintained picnic facilities. The ruins of the fort can be enjoyed by divers and non-divers alike. Newport is a short, sce-



photos/Eric Schwarz

nic drive away and holds many after dive activities. There are numerous interesting shops to peruse, along with a wide choice of restaurants. The large marinas always have an abundance of yachts on view and Bellevue Avenue leads to a breathtaking ride along the coastline, complete with mansions.

However, all of this is trivial if one considers that somewhere near the shores of Fort Wetherill is "Pirates Cove." It is said that Captain Kidd, the notorious pirate who escaped capture from the British by hiding in Rhode Island waters, buried treasure here. Although eventually captured and hung, he never revealed the exact location of his ill gotten booty.

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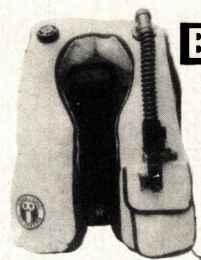
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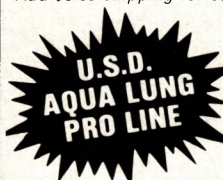
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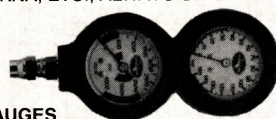
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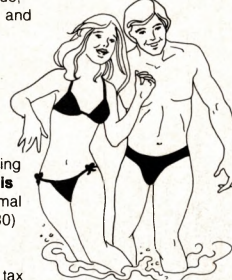
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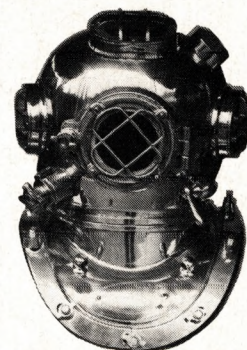
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**TEXT AND PHOTOGRAPHY
BY BRUCE HOOTMAN**

Midwest diving, at its best, can be found in Lake Superior. In Michigan's Upper Peninsula, about 120 miles west of Sault Ste. Marie is the small town of Munising. It's a quaint town whose people make their living mostly off commercial fishing or the local paper mill.

Beginning at the edge of town and extending for 30 miles to the east along Lake Superior is Pictured Rocks National Park. It is known for its spectacular sandstone cliffs which drop into Lake Superior's eternally icy cold waters; its caves formed by the beating of waves over the years; and its numerous waterfalls. It is truly a beautiful area but also dreaded for navigation on the lake. When the fall and winter bring storms and rough water the only shelter to be found on the south shore is Munising Bay, formed by Grand Island, one of the largest in Lake Superior. For this reason, the lake bottom is dotted with numerous shipwrecks, the majority of which were attempting to seek shelter during storms.

Owing to the cold waters of Lake Superior the ships are preserved very well.



Munising Michigan Wreck Diving

Even those that went down over 100 years ago still remain virtually intact and in the same condition as the day they went to their icy graveyard. The clean water, with visibility of 30-50 feet, makes it ideal for photography.

The ships that have gone down over the years are of varied types and carried a multitude of cargoes, some still alleged to be concealing treasures. Most noted are four lying within a few minutes ride by boat from the town of Munising. These are the *Herman H. Hettler*, the *Manhattan*, the *Dreadnaught* and, most interesting, the *Smith Moore*.

During one of Lake Superior's infamous gales on November 23, 1926, the



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Herman H. Hettler was seeking shelter from the waves threatening to tear her apart. Upon entering the mouth of the east channel, a compass course variation caused the *Hettler* to run aground. After constant battering by the waves that evening, the 210 foot, 789 ton wooden steamer began to break apart at the seams, ending her 36 year history on the Great Lakes. The cargo of 1,100 tons of bulk table salt was quickly dissolved and the *Hettler* was a total loss. The wreck was later dynamited as a hazard to navigation and pieces now lie strewn across the bottom in about 25 feet of water. There are chains, brass fittings, large sections of the wreck and a large boiler to explore.

Some 23 years earlier, on October 26, 1903 the 252 foot wooden hulled steamer, *Manhattan*, was also seeking shelter

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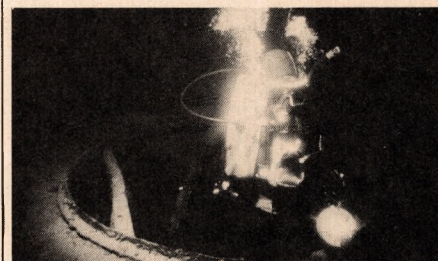
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known as the *Dreadnaught*. Some experts feel it might be the *Granada*, which was carrying iron ore and went down in about 1886. The wreck comes to within about 10 feet of the surface. The photographer can take pictures of an intact hull and go into the wide open holes to explore and photograph inside. The *Dreadnaught* is truly one of the most exciting and most visited wrecks in Munising Bay.

The most spectacular shipwreck in the area is the *Smith Moore*, which lies in 110 feet in the middle of the east channel. On the afternoon of July 13, 1889, in a dense fog about 10 miles from Munising, the *Smith Moore* was involved in a collision with the *James Pickands*. The *Pickands*, probably unaware of the extent of damage, continued on its way. The *Smith Moore* was taking on water when the *M.M. Drake* came along to tow her to Munising. For some reason never to be known, the crew of the *Drake* was observed cutting the tow line in the middle of the east channel, only 300 feet short of a shallow sandbar. The *Smith Moore* sank immediately owing to the amount of water taken on and the 1,700 tons of iron ore she was carrying. The 223 foot long ship now lies perfectly upright at 110 feet with her deck at 85 feet. At the time of sinking her masts stuck out of the water by 15 feet, but the ice and waves have broken them off and they now lie beside the ship on the bottom. The majority of the *Smith Moore* is intact with damage at the bow where she was rammed. The cargo holds are wide open and you can navigate the inside of the wreck almost



completely without much problem. Some of the more interesting areas include the stern rail and the four bladed propeller. The *Smith Moore* is a wreck that can be visited for years with new areas to explore each time.

Also to be found in the area along Pictured Rocks are the wrecks of the *Superior*, a steamer that foundered on October 29, 1956; the *Sikha*, a 272 foot wooden steamer that ran aground October 4, 1904; and the *Kiowa*, a 251 foot freighter that was carrying grain. Others, such as the *Merchant*, that went down in 1847 and the *Wood Island*, a tug that sank in 1922, remain to be found.

Owing to the great increase in visiting divers, the governor of Michigan moved, in 1981, to form the Alger Underwater Preserve. For this reason, the wrecks are now protected and will remain for divers to view and photograph in the future.

Announcing The CAYMAN

EXPRESS

TEXT AND PHOTOGRAPHY
BY GERI MURPHY

Now divers can fly non-stop from either New York or Chicago to Grand Cayman, diving's number one vacation destination in the Caribbean. A Cayman air charter company known as Cayman Express Ltd. offers weekend charter flights for divers and non-divers until the weekend of April 6-7.

The Cayman Express direct flights from New York will operate every Saturday, departing from the Air France Terminal of JFK International Airport. Scheduled departure time is 11:15 am; arrival at Grand Cayman, 2:30 pm. This will be the second year for Cayman Express Limited's successful winter/spring direct flights from New York. Round trip air fare from New York to Grand Cayman will be \$399. All flights are via Cayman Airways 727-200, ultra-modern jet aircraft. The flight takes an estimated three hours, 15 minutes and eliminates the need for connections or an overnight stay in Miami. The return flight is scheduled to depart Grand Cayman the following Saturday at 7:00 am, arriving at JFK at 10:15 am.

Cayman Express is launching a new program for 1985 with direct non-stop flights from Chicago to Grand Cayman every Sunday. These flights continue through April 7. Flights will depart from Chicago's O'Hare International Airport on Sunday at 11:00 am, arriving at Grand Cayman at 3:30 pm. Check-in for depart-

ure is at the Air France ticket counter. The round trip air fare from Chicago to Grand Cayman will be \$399 and flight time is estimated at three and one-half hours. All flights are via Cayman Airways 727-200 jets. Returning flights are scheduled to depart on Sunday at 7:30 am, arriving at O'Hare at 10:00 am.

Cayman Express Limited is a Cayman

Grand Cayman.

In addition to offering non-stop flights from New York and Chicago, Cayman Express also books complete one week vacation packages with accommodations at any of six hotels or eight condominiums on Grand Cayman. The hotels include: Villa Carib, Cayman Islander, Holiday Inn, South Cove and Beach Club Colony. The condominiums include: Rum Point Retreat, Plantation Village, Plantana Resort, Lime Tree Bay, Tarquynn Manor, Villas Pappagallo, London House and Georgetown Villas. Air fare/hotel pack-



Cayman Express Limited offers direct flights from New York and Chicago to Grand Cayman through the weekend of April 6-7. All flights are on Cayman Airways 727-200 jets.

based air charter and hotel booking service, owned and operated by several major condominiums and the Holiday Inn of Grand Cayman. Chairman of this firm is Don Messick, well-known condominium developer on the island. Executive vice-president is Paul Robinson, marketing director and vice-president, Holiday Inn,

ages start at \$599 and vary depending upon hotel or condominium selection.

For more information, color brochures and reservations contact: Paul Robinson, Cayman Express Limited, 5100 Poplar Avenue, Suite 2216, Memphis, TN 38137; or telephone, U.S. toll-free, (800) 247-9900.

DIVER'S DIRECTORY



Advertising rates: \$141.00 for three consecutive ads, \$240.00 for six consecutive ads, \$360.00 for a full year. DEADLINE: 28th of 3rd month prior to publication. PAYMENT MUST ACCOMPANY COPY. Send all material to: Diver's Directory, c/o Direct Response Advertising, P.O. Box 69910, Los Angeles, CA 90069.

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Specializing in small personal charters, daily trips.
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Colorfully Hawaiian and uniquely exciting. A naturalist
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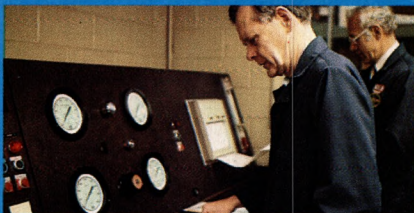
Ozone chamber subjects rubber parts to extreme conditions for comprehensive evaluation.



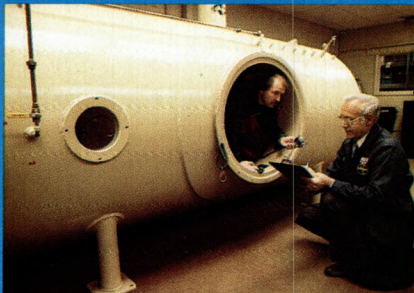
Comparator machine magnifies part for thread compatibility.



Test result evaluation at hyperbaric chamber computer control console.



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